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AS indicated in these columns last week, we are not optimistic as to Mr. Brandeis' chances of success in his role of instructor in a course on practical railroading before a class room full of railway presidents. But we can hope for some indirect results of the publicity given to his claims. It is well to emphasize high ideals, even though they be impracticable in detail. Ralph Waldo Emerson told us to hitch our wagon to a star, an admitted impracticable source of motive power for a wagon. But the principle is none the less sound, and his namesake's standards of efficiency may be some of the elements composing that star. It will do good to air the whole subject of scientific management, betterment work, efficiency or whatever one calls it. Some operating officers and many boards of directors need to know what efficiency means. Ordering a subordinate to cut his expenses in two is not what it means. A superintendent of motive power has gone through a hard winter with his power in bad shape. He is told to get it in good shape for the next winter, perhaps with the intimation that his position depends on his success. He builds up a well organized, smooth working shop force, improves his repair shop facilities and gathers the right men at his coaling stations. Along in June an order comes down from above him telling him to cut expenses in two. What can he do? His motive power starts the next winter in worse shape than ever. One cannot get a high unit of efficiency without holding trained employees during slack periods so as to be ready when the rush comes. It takes an expensive plant to do a wide variety of work cheaply.

WE publish elsewhere in this issue certain analyses of the cost of railway operation compiled by the Interstaate Commerce Commission. There are certain very significant facts that are apparent to even a casual examination of the figures now complete. With the single exception of the two Hawley roads—the Iowa Central and the Toledo, St. Louis & Western—the operating ratio was higher in the last five years than it was in the five years previous; and with the exception of the Delaware, Lackawanna & Western and the Toledo, St. Louis & Western the operating ration in 1910 was higher than the average for the last five years. With the exception of the Toledo, St. Louis & Western, the ratio of cost of material, fuel and all other like items to total operating revenues was higher in the last five years than in the five years previous, and was higher in 1910 than in the last five years. With the exception of the Delaware, Lackawanna & Western, and the two Hawley roads, the ratio of compensation paid directly to labor to total operating revenues was higher in the last five years than in the five preceding years; and with the exception of the Lackawanna and the Clover Leaf, the ratio of compensation paid directly to labor to total operating revenues was higher in 1910 than the average for the last five years. With the exception of the two Hawley roads only, the operating income in the last five years was a smaller proportion of total operating revenues than in the five years previous.

THE New York State Public Service Commission, second district, has ordered the New York Central to install a crossing bell at the creamery crossing in New Paltz, Ulster county; and the company is required to report to the commission the failures of the bell to operate. The company is also required to station an employee on the crossing whenever a switching movement is made over it. Here again we have commissioners rushing in where railway officers fear to tread (almost). What if the signal engineer, or man in charge, should claim exemption, under the constitutional proviso, from telling of his bell's failures, on the ground that his testimony might incriminate himself? At the recent meeting of the signal association, when a proposal to report certain kinds of failures was discussed, it was remarked by one prominent member that if such reports actually were to be required by a government authority the results would be such that probably Ananias would feel like "backing off the map." We trust that the New York commission will not forget to ask also for reports of instances when the bell fails to cease to "operate." Some of the worst defects have been those which caused bells to ring hours or days continuously.

PROPOSED REDUCTIONS IN SLEEPING CAR RATES.

THE Pullman Company has greatly disappointed the state attorney-generals and other politicians who have been running for office by trying to compel it to reduce its rates. It has offered to reduce the rates before the prosecutors and politicians have had time to get a reputation at its expense. Furthermore, it has offered to make reductions not only where they have been sought by formal proceedings but throughout the country. The Pullman Company ought to be indicted for cruel and inhuman treatment of politicians. How can they get credit for reductions made where they did not ask for them? The company plainly is seeking to dish the politicians. It is trying to get for itself credit from the public for reductions in its rates instead of letting others have it. This tendency to cultivate public opinion is getting chronic among large corporations. If it keeps up the public and the corporations may get together in spite of the statesmen. We are beginning almost to sympathize with the anti-corporation agitators. It looks as if the time is coming when they may have to change their business; and this for a man who knows how to do only one thing is very hard.

Of course, the attorney-generals of the states who have complained to the Interstate Commerce Commission about the Pullman Company's rates will not accept the reductions it offers. To do so might be good for the public, but it would not be good for them. You cannot successfully run for office on a platform constructed of popular acts done by those that you attack. The Interstate Commerce Commission seems apt to regard the matter differently. The reductions offered amount to about 20 per cent. for all upper berths and are not negligible for lowers. The differentials proposed between uppers and lowers would remove all ground for the complaints heretofore made, because the rates for them have been the same. It would seem also that, assuming the rates fixed for uppers are reasonable, ground for complaint about sleeping car rates in general would be abolished. For under the proposed arrangement the traveler might choose whether he would pay, say, $2 for one kind of sleeping accommodation, or $2.50 for another kind. If he chose to pay the extra 50 cents his action would afford conclusive evidence, it would seem, that the lower was worth 50 cents more to him. If he afforded such evidence, how could he rationally be heard to complain that the extra charge of 50 cents, which he did not have to pay, was an unreasonable exaction?

The demand for a differential between upper and lower berths is an interesting commentary on the question of cost of service versus value of service in rate-making. It costs more to build the upper berth into the car. It also takes more labor on the part of the porter to make it up. On the cost-of-service theory, therefore, the rate for the upper should be higher. But, regardless of differences in cost, people prefer lower berths. Therefore, the very public officials who denounce the railways for often disregarding cost of service demand that the Pullman Company and the railways shall disregard it in respect to sleeping car rates. To charge a higher rate for a lower than for an upper berth is, on the cost-of-service theory, an unfair discrimination. On the value-of-the-service theory it is perfectly proper, simply because people prefer lower berths.

It is an interesting question what effect the proposed change will have on sleeping car earnings and service. Heretofore most sleeping cars have been run with most or all of their upper berths empty. If it should develop that many of those who heretofore have bought lowers will in future buy uppers, and there be no increase in the total number of people using sleeping cars, the reductions in rates will result in reductions in earnings. If most of those who heretofore have bought lower berths to continue to do so, and the lower rates for uppers cause many persons who heretofore have stayed in chair cars to take sleepers, the result will be an increase in earnings. The latter result seems the more probable. If it takes place, the reductions in the rates will cause a deterioration in the value of the sleeping car service; not because the service given by the company will be different, but because, owing to the increase in the number of people in a car, there will be less room and less comfort for each passenger. In that event, the reduction in rates will prove a good thing for the sleeping car companies and a good thing for the additional people that it enables to take sleepers; but it will not be a good thing for those who would take sleepers without the reductions in the rates.

VENTILATING MISREPRESENTATION OF RAILWAY AFFAIRS.

ONE of the most striking developments of recent years in railway affairs has been the change in the attitude of railway managers toward publicity. The technical officers for years have publicly discussed their problems in the meetings of their associations. They have done so largely because their questions are technical and, therefore, outside public understanding and interest. The discussion of railway questions in general by those knowing most about them has been in something like inverse ratio to the amount of interest the public has taken in them. The reticence of railway managers about these things prevented popular education and bred popular suspicion. Most of the railway managers now see and cencede this, and all over the country railway officers, from the chairmen of the boards and the presidents down, are arguing railway questions with their neighbors, public men and the press.

This has good results of two kinds. It tends to prevent the doing of things that ought not to be done; when a man intends to defend what he does, he is apt to try not to do anything he cannot defend. And it is also causing the public, which is apt to take the scriptural view that men love darkness because their deeds are evil, to regard the railway business with less suspicion. But the work of educating people about railway matters has only begun. The newspapers and the magazines still teem with misrepresentations. For instance, we find in *Hampton's Magazine* for November the following fearful and wonderful misstatements:

> "Last spring the railways hastily issued new schedules, making sweeping advances in rates and involving, it has been estimated, an increase of something like a billion dollars in the country's transportation bill. * * * * Already it has been shown that the proposed advances are almost entirely in rates which do not affect products controlled by the trusts. It has been shown that by thus favoring trust products the increases have been so applied that traffic which contributes only 52 per cent. of total revenue is subjected to increases of 18.6 per cent., while the traffic representing trust products is practically not increased at all."

The total freight earnings of the railways of the United States in the year ended June 30, 1909, were but $1,677,000,000. In order to increase their freight earnings $1,000,000,000 a year it would be necessary for the roads to raise *all* their rates an average of 60 per cent. But *Hampton's Magazine* says that traffic which contributes only 52 per cent. of total revenue is subjected to an increase of only 18.6 per cent., and implies that other traffic is not subjected to any increases. Fifty-two per cent. of the total freight revenue in 1909 would be $872,040,000, and 18.6 per cent. of that would be $162,199,000. This leaves a trifling alleged advance of $838,000,000 to be accounted for! When such utterly idiotic statements can get publication, even in the most irresponsible and disreputable of muck-raking magazines, it is evident that the efforts of the railway managers to get the facts about railways before the public are going to have to continue for a long time to come. The public's knowledge about such matters is now so little that we venture that a great majority of those who read the above statements in *Hampton's* actually believed they had some foundation. A mere flat denial of a false statement has a better effect than ignoring it. A denial accompanied by its conclusive disproof usually makes both the deliberate liar and the man whose misstatements are merely the result of ignorance more careful. And if it does not make them more careful it at least undermines public confidence in what they say.

Hampton's Magazine paradoxically heads the editorial from which we have quoted, "Getting at Railroad Facts." The great difficulty nowadays is not to get at the facts about the railway

business, but to keep certain classes of people from telling lies about it and getting them believed. The only way to stop these misrepresentations is to keep right on refuting them day after day, week after week, month after month, year after year; and unless the work is participated in by railroad officers and employees from Maine to California, and from Washington to Florida, it will not be effectively enough done.

THE RAILWAY AND THE AUTOMOBILE.

THERE are those, led by our strenuous ex-President, who extol college football as a stimulus of courage, manhood and character. There are others who decry it as physical brutality, a foe of scholarship. Without committing ourselves on this question, we can pluck from football and its massive figures an economic suggestion. The figures, which we print elsewhere in this issue, of passenger traffic to and from the Yale-Harvard game last month throw some light on the mystic subject of the automobile as a diminisher of railway business.

The number of automobiles at the game were not counted, but they were parked by acres and the estimates of their numbers ranged form 1,500 to 2,000. They represented, also, a very large increase indeed as compared with the numbers at the game two years before. That increase also tallies with the familiar fact of the greatly expanded use of the automobile during the two-year interval. There were three constant factors at both games: The two days were pleasant; the capacity of the Yale stands of 33,000 spectators was practically the same; and the trolley service between the football field and the city of New Haven was unchanged. A somewhat larger number of admission tickets went to Boston and Cambridge in 1910 than in 1908. But many of them found their way back to New Haven, and the difference of 1,000 in the number of Boston-New Haven railway passengers probably represents about the real disparity, while the other local distributions of tickets were much varied. Under such conditions it ought to be possible, by analysis of the football traffic by rail, to arrive at a rough approximation of its diminution by the automobile during the period named.

The railway carried 35,763 passengers—counting evidently one-way trips—in 1910, and 39,777 in 1908. Allowing for the extra 1,000 Boston-New Haven passengers the difference would be 3,014, to express the automobile subtraction from the railway traffic. But as the railway apparently carries about one-half the spectators who go to the game and the 1,000 tickets would have normally been divided in that ratio the number diverted by the automobile rises to 3,514, or nearly 9 per cent.

Taking the returns in more detail, they become suggestive. The total revenue from the game rises from $71,299 to $72,378. But, excluding parlor and sleeping car receipts, it falls from $62,534 to $62,430; and the increased revenue from Boston, whence the tide of travel was swelled by the looked-for delights of victory, was $4,606. At every other local point of traffic given there was a passenger decrease; except at one—the nearby city of Bridgeport—where the gain of 286 passengers is probably more than accounted for by stop-over automobilists from New York, skeptical of New Haven capacity for man and machine, and who stayed at Bridgeport over night and took the railway to New Haven next day. If Bridgeport is omitted, there was a diminution of passengers for every one of six passenger groups named except that of Boston. One of these groups shows a very significant reduction. It is that under the head "excess regular business" on the day before and the day after the game. It falls from 13,113 passengers to 9,413, or a drop of more than 28 per cent. This loss was mainly from Connecticut points, many of them not far from New Haven. It raises clearly the presumption of a very large group of spectators of the "short distance" type who in 1908 stayed over night in New Haven, but in 1910 took their automobiles home after the game.

These short distance passenger losses, coupled with the slight loss of New York passengers—about 4½ per cent.—saying nothing of the positive gain in the Boston passenger group, indicate almost conclusively the character of the automobile as a short distance rather than a long distance competitor, especially in cases where the traveler carries no heavy baggage. But in actual and every day experience that dictum must carry its limitations. If the automobile—like the trolley—is a rival of the railway between stations near together, it is a feeder to the ultimate ones. It may be a rival between stations A and B, but a feeder to stations C, D and E. It is a railway feeder also as a lateral which shortens practically by 80 per cent. the distance between the nearest railway station and the automobile owner living back from the main railway routes.

FIREBOX AND TUBE FAILURES.

THE recent railway club papers relating to locomotive boiler failures indicate that the remedies which have been so generally accepted as effectual have not been properly applied or that something further is needed to overcome the conditions that give rise to continued reports of leaky tubes and cracked side sheets. The illustrations in these papers make an exhibit of boiler failures which we supposed could only be found in the "dark ages," before so much had been learned about expansion and contraction, scale and corrosion, flexibility and corrugation. It comes as a shock to find that in recent practice back sheets, side sheets and tube sheets still crack, that staybolts break in large numbers and that tubes get loose and leak almost as frequently as in former years. Remedies that have been suggested and largely used have somewhat reduced the number of such failures, but these remedies are principally in the nature of improved methods in the treatment of the boiler, such as preventing, as far as possible, unequal expansion of the firebox sheets; regulation of the water level, and using better methods of handling the locomotive over the cinder pit, cooling off, washing out and filling the boiler. These all require regular and exact practice, and depend on good work on the part of the men who are engaged in this disagreeable employment and who are paid ordinary wages for what is considered ordinary work. It seems to be necessary in these days to pay a premium for a fair day's faithful service. This may be necessary also in order to secure care and regularity in the treatment of boilers in cleaning the fires, washing out, etc. In so far as failures are due to poor work of this kind, a premium could be paid for certain mileages attained without failure, and the supervision of this class of work should be intrusted to a man of higher grade than is ordinarily found in charge.

The two papers to which we have referred are those of D. R. MacBain, in the May proceedings of the New York Railroad Club, and J. W. Kelly in the November proceedings of the Western Railway Club. In addition to improvements in operation, they suggest new designs for the construction of boilers, and these are more likely to prove of permanent benefit, as they are independent of carelessness on the part of the workmen at locomotive terminals. Mr. Kelly suggests a simple rule, governing engineers, to prevent tube leakage after clinkering which could be followed without difficulty. This is to have all engines approach the cinder pit with the water level with the top gage, a good fire and plenty of steam. His principal suggestion for improved boiler construction relates to a reduction in the number of tubes and an enlargement of the bridge in the tube sheet. Thus, an engine as received from the locomotive works had 342 tubes with 5/8-in. bridges. The new tube sheet provided for only 280 tubes, or 62 less than were originally used, and the bridges were increased to 13/16-in. The tubes left out were principally those in the lower portion and around the outer edges of the sheet. This change was the result of a three-years' test with 40 tubes plugged up; no appreciable effect was observed on the steaming qualities or coal economy of the boiler. Mr. MacBain's principal recommendation relates to the loose application of flexible staybolts. A full installation of these bolts was made on a

Lake Shore engine in heavy passenger service in January, 1907, and at the last examination, in February, 1910, after the engine had made 243,000 miles, there was not a broken staybolt or a vertical crack in the side sheet, or a trace of a crack in the back head or tube sheet. No cracks or signs of cracks leading from the arch tubes were found, and the engine had not been held out of service for boiler work, other than expanding tubes, in all that period. This remarkable service is so unusual that the methods employed to secure it should be seriously considered, as large savings should result from their general application.

An unusual record for tight tubes was also obtained by the same railway, by depressing all the tubes at the center so that they sagged about 1 in. below the normal. The expansion of the outer portion of the boiler being greater than that of the tubes, the tendency with straight tubes, as ordinarily applied, is to cause a movement of the tube in the tube sheet. But when there is a sag in the tubes this expansion causes them to rise and assume a nearly horizontal line. An indicator placed on the boiler with a rod extending through a stuffing box to a tube showed that in firing up there was a gradual raise of the tubes, and when 200 lbs. pressure had been reached they had raised 15/16 of an inch. In service the engine made nearly 70,000 miles without a tube failure, while other engines with ordinary tube setting had several detentions charged to tube leakage in the same period in similar service.

The rapid introduction of smoke tube superheaters makes it still more desirable that the cause of leaky tubes be well understood and proper preventives used, as it is difficult to remove tubes when superheaters occupy so much space in front of them in the smokebox. The use of large numbers of 4-in. and 5-in. tubes for superheaters also affects matters materially, for these tubes must be of uniform thickness and very carefully set in order to prevent leaks. All that has been learned and unlearned about the strange and annoying action of 2-in. and 2¼-in. locomotive tubes must now be supplemented with a study of the ills and cures for combinations of small and large tubes in the same tube sheet.

The use of larger locomotives renders the small failures which disable engines much more expensive, and leaky tubes frequently not only remove an engine from service, but if such an engine remains on its run the leaky tubes are a continual cause of low pressure, and, therefore, interfere with and defeat the very object for which these large units have been built, namely, the hauling of maximum tonnage with lower cost of fuel. With these large engines there is, therefore, the imperative necessity of a constant investigation as to the cause of tube failures so that proper remedies may be applied.

The necessary care of locomotive boilers in the prevention of unequal expansion of the sheets should include some provision for protection in severe winter weather, and a special shield from the cold blast of the winter wind while clinkering—through apparently a necessity—has seldom been suggested or used. To remove the hot coal suddenly from the firebox and let air at zero temperature circulate over the fire sheets and through the tubes, although common practice, does not seem to be a correct one. On some of the Canadian lines a special protection is provided; with the exception of the Southern states, winter conditions in the United States would warrant some shelter at the clinker pit. On some lines a portion of the engine house has been used for clinkering purposes in cold weather, but the introduction of so much dust and dirt is objectionable. In the approach to the engine house a long concrete or brick building could be provided and kept at a temperature of 40 to 60 deg. in winter. It should have an exhaust fan to remove the dust. The work of clinkering would then be made more comfortable for the workmen, and the firebox would be protected from sudden changes in temperature. Such an adjunct to the engine house promises to improve conditions in cleaning the fires, just as the elaborate hot water plants for blowing down, cooling off and filling boilers are doing after it reaches the house.

TIE PLATES ON AMERICAN RAILWAYS.

THE *Railway Age Gazette* recently finished a pretty thorough canvass, which was undertaken to ascertain the present practices of American railways in the use of tie plates. A letter of inquiry brought 98 replies from engineers on 76 lines, representing very fairly all sections of North America. In answer to a request for drawings showing the standard tie plates used 80 blue prints were sent. In addition a number of engineers and manufacturers were interviewed on the subject.

In other pages of this issue many drawings are shown, together with significant statements of fact and opinion quoted from many of the 98 replies received from railway engineers.

A tie plate is a piece of metal inserted between the base of the rail and the top of the tie. It varies in width from 5 in. to 7 in., and in length from 7 in. to 9 in., with a thickness of ⅜ in. to ½ in. The variations in thickness are confusing, as attempts are made to design plates for each size of rail. There are lugs, ribs, knife edges, claws and waffle patterns on the bottom and many different shapes and sizes of channels on top. The Santa Fe conducted extensive tests, with the result of tentatively favoring a plate with no projections below. This is now being tried out.

The ingenuity of manufacturers has been taxed to produce a pattern on which a patent could be obtained, and in the railway offices the ingenuity of designers has been taxed to produce a pattern that will not infringe some patent. In spite of the best efforts, however, a few railways are now facing suits for patent infringement. The manufacturers naturally desired to have something to sell which was different from that which a rival was selling. Each point of difference was made a "talking point." Now the manufacturers are bidding on all designs furnished. One manufacturing company has a pattern which, it believes, covers every desirable quality, and this is made in six different sizes and weights. In addition to the six sets of rolls for this special product the company owns more than 35 sets of rolls of patterns designed in the offices of various lines. The company bid on these special designs and, having obtained the contracts, had to make the rolls at considerable expense. In a number of instances the tie plates were found to be lacking in some particular and the railway company changed the patterns within a year or two, thus leaving the manufacturer with useless rolls on hand.

We know of no railway which has formally adopted a standard tie plate; all are experimenting. In the 98 letters, few engineers express full approval, or even satisfaction, with the plates they are using. The uncertainty of the present situation is shown by the facts that some roads have six sizes and weights of each of three patterns in present use. The size and weight properly vary with the service to be rendered, but it is quite safe to say that there is a present enormous waste which can be stopped by assembling and digesting the results of experiments on different roads. It is an inspiring subject for a committee of the American Railway Engineering & Maintenance of Way Association.

For preserving gage some sort of bottom projection is considered necessary and the details illustrated are the result. Some believe that a very slight projection is sufficient, while others favor deep knife edges. When placed across the grain the effect is no doubt bad, for the wood fibers are cut and decay is hastened. Longitudinal ribs are better, for they merely press the fibers apart, but if too close together and too deep they have been known to cut out blocks of wood from the top of the tie, the deep ribs holding the wood firmly and shearing off the fibers at the bottom edges. With the use of screw spikes the plate with the smooth bottom is apparently sufficient.

Lately the idea of using the tie plate as an anti-creeper has been gaining strength. On this point the letters show great difference of opinion with a tendency against it.

Canting rails inward, by using wedge-shaped tie plates, is seriously considered by many engineers. It is easy to say that it is

ineffective in bettering the contact of wheel with rail because these surfaces become worn. An important purpose in designing is to form contacts which will result in least wear. In Westinghouse brake trials in England, better stops have been made than in this country, difficult to account for unless it was due to wheels coned 1 in 20 running on rails canted 1 in 20. The added power of canted rails to resist overturning and perhaps other forms of track spreading, should be carefully studied out. If a wedge-shaped tie plate thickens it where it is most liable to buckle, it should be known. The whole subject deserves full and complete investigation.

Because of comparatively low cost, rolled steel plates are most often used. Some companies make wrought iron plates, believing them more durable than steel under all conditions and much more durable when exposed to salt brine from refrigerator cars. The malleable iron plate is considered to be the best, especially for resisting the action of brine, but it must be heavy, and weight is costly.

RAILWAYS AS OBSTRUCTIONS TO WATERWAYS.

IN a communication printed elsewhere E. S. Dowe, president of the New Haven Towing Company, takes up, both in generality and specification, the question of the obstruction of waterways and water terminals by the railways as outlined heretofore by Commissioner Herbert Knox Smith. Mr. Smith is a Connecticut man, as is Mr. Dowe; and it is hardly a far-fetched inference that the original motif of each runs back to Connecticut water terminal conditions and the relation to them of the New York, New Haven & Hartford Railroad Company. To those localized conditions at three Sound ports—Bridgeport, New Haven and New London—named by Dowe we may, therefore, justly limit the present inquiry and substitute the concrete cases for the generality. In passing, however, it may be well to call attention to Mr. Dowe's admission of the inefficiency and lack of enterprise of independent boat lines on the Great Lakes, where the business is handled practically by great industrial corporations, with the United Steel Corporation at the front, and by lines owned by railways. That concession is the clue to a general situation that extended far beyond the Lakes.

At all three of the Connecticut ports named by Mr. Dowe conditions antecedent to railway monopoly were substantially the same. There were two independent railway lines running northward from Bridgeport—the Housatonic and the Naugatuck—operating in connection with a boat line to New York. There was the Hartford & New Haven Railway Company—working with a boat line to New York; and there was the New York & New England railway, with its leased line, the Norwich & Worcester, connected with New York by a controlled boat line from Norwich, Conn., and New London. Consolidation of the railways naturally and by the inevitable law of mergers brought all three of these boat lines under one interest, just as it did the larger boat lines at terminals further eastward—Stonington, Providence and Fall River. The Bridgeport and New Haven water lines were bought up; the New London line was already controlled by the absorbed New York & New England railway system. With the acquisition of the boat lines naturally came acquisition of additional harbor properties for purposes of extension, new trackage and general addition to the terminal plant.

Such acquisition was in the nature of the most commonplace commercial foresight and would be so regarded by any business man. Sometimes the property has been improved, sometimes not, according to the exigencies of the controlling railway corporation.

But how far, in the cases of the three Connecticut ports, has railway consolidation resulted in positive monopoly and exclusion on the water front? Taking up Bridgeport first, the impartial map of the local United States engineer shows that by the New Haven Company owned 4,440 feet on the west side below the railway drawbridge at the head of the harbor, and 1,770 feet on the Pequonnock River above where the channel is more easily and cheaply accessible. But on the river private interests hold and have largely developed several times the 1,770 feet of water front; and on the east side of the narrow harbor, where the railway apparently owns but some 80 feet, private enterprise has left the frontage almost undeveloped. On Bridgeport harbor there also hang other tales. How some years ago the plan of the company of straightening the harbor line and removing a big wharf running out into the harbor and obstructing it—this in exchange for a federal grant of mudflat—got into city politics and resulted in a loss of $400,000, which the company planned expending for dock coal business—later shifted to New Haven. There is also the tale of a bill put through the Connecticut legislature unresisted for condemnation of part of the water front for the benefit of the city, but with no condemnation proceedings as yet—the company having previously offered to sell the property to the city at less than its cost.

We turn next to the United States engineer's map for the harbor of New Haven. It shows a harbor line—counting wharfage and wharfage potentiality—of 1,555 feet owned by the city on the immediate harbor front; 1,470 feet in private hands, and 200 feet of the Starin line—a total of 3,225 feet, not in the hands of "monopoly." This is on the immediate city front. On each side of the harbor and, in one stretch near the channel, there is private ownership exclusively for several miles, saying nothing of other miles but partly used on the Quinnipiack River east and north. At New London we have no official figures beyond a total ownership of available shipping water front there by the company of 1,880 feet. But every one familiar with that harbor knows of its depth, of its grand unimproved facilities on both sides and of the large rival wharf terminal of the Grand Trunk—Vermont Central. New London, indeed, with her splendid harbor almost facing the high sea, her intersection by two important railway lines, and her two boat lines, yet her stagnation when population through four decades, 1850-1880 inclusive, rose only from 8,991 to 10,537, is a mystic study in harbor undevelopment, which still goes on though her population has later considerably risen? Where is her deadly flaw? Surely not in monopolized water front. Not surely, perhaps, but more probably, in lethargic private enterprise.

Broadly speaking, it may be that her experience teaches, hence the decline of her whaling industry, that good harborage avails not without the antecedent business.

Finally applying to the three Connecticut ports the government improvements of navigation lauded by Mr. Dowe in the case of the Great Lakes, one finds by the records approximately $2,082,000 spent or appropriated—almost all spent—on New Haven harbor and breakwaters—$753,000 on the harbor alone; $996,000 at Bridgeport; and at New London $159,000 on her harbor and $539,000 on the Thames River—the small harbor appropriations incidentally proving the natural excellence of her commercial waters. Surely no default of the federal "pork barrel" in the case of New Haven, New London and Providence as causation of backward water terminals.

The actual conception in the case of the three ports and many like them on river as well as on coast lies deeper and in many cases along the lines suggested by President Delano. Superior energy of the railways; their more stalwart, ramified and efficient trade organization; their intrinsic character as feeders of the hinterland to and from the ports; and their sharp competition often even when their terminals are not at ports—at this point their competition suggesting their effective rivalry with the old canals with the incidental vantage of avoiding trans-shipment. When they own boat lines of their own it is as certain and reasonable that they will favor them as that they will accept traffic from boat lines that they do not own. But through the whole texture of the subject the major strand that runs is the fact that, wisely or unwisely, private venture has not reached out. While to some degree its obstacles have been artificial in much larger degree, they are natural—or, at least, the outcome of natural and fundamental economic law.

Letters to the Editor.

RAILWAYS AND WATER TERMINALS.

New Haven, Conn., November 11, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

While not a railway man, myself, I am deeply interested in their doings, for they very largely control the business in which I am specially interested, water traffic. A railway friend knowing this, sends me from time to time copies which contain articles bearing upon the subject, "Water Traffic." My attention has been called to an article headed in your issue of October 14, 1910, "Railways and Water Terminals," by President Delano, of the Wabash, criticising the recent report of Herbert Knox Smith, commissioner of corporations, on "Water Terminals."

I have not Commissioner Smith's report before me, but I read it carefully when it was first printed, and I repeat with emphasis now, what my impressions were then; namely that it is astonishing how closely he reached the facts as they exist with us to-day.

On the other hand, President Delano is so far afield that I feel sure that the evidence upon which he gave his verdict came second hand, and by freight. The fact that he compares conditions on the Great Lakes with conditions on the coasts and rivers leading to them suggests to me his lack of knowledge on the subject.

The writer knows something of the coast from Maine to Florida, and of those advantages to water traffic which are made conspicuous by their absence. He spent considerable time on the Great Lakes enjoying the many advantages (in fact every conceivable aid to navigation) that the government has given to that busy region. We coveted nothing we saw, for we realized that every light, buoy and mark was a necessary cog in that giant wheel of commerce that has astounded the world. By inquiry we learned that the great evolution was brought about by railway interests, as they had to resort to water traffic in order to carry the vast amount of freight that offered, especially ore for steel production. The steel interests having no other alternative but water traffic to obtain material got busy and secured appropriations sufficient to give a channel depth of 21 ft. from Duluth to Buffalo, with such day and night markings as the world had never seen before.

On the coast we are not so fortunate in having any combined interests sufficient to obtain the actual needs of navigation, let alone the luxuries, nor will we have them until the railways realize the fact that there is more money in the quick short haul than there is in the long haul.

For illustration. It takes from three to four weeks for a car to go to the mines and return to almost any part of Connecticut. Prevailing rates are $2.60 to $2.85 per ton, and $1.50 of this is given to the roads west of the Hudson river, while for the short haul, say New Haven to Springfield, Mass., the rate is 85 cents, and a car can easily make one trip per week. To be added to 85 cents would be the income from loading on cars from the boats at New Haven. This is done by the railway, which charges, when weighed, 23 cents per ton, out of which gross a net income has been given of 21 cents, making a total of $1.06 per ton, per week, against the maximum $1.35 for the minimum time, three weeks, or $1.83 per car ton in favor of the short haul for the three weeks. Other local rates would show greater gains. For instance 70 cents is the rate for places only 12 miles from New Haven, and 35 cents for factories within the city limits, to any of which cars should make at least two trips per week.

We have diverged somewhat from the subject, but it is a big problem, and an interesting one—one that will bear investigation from many angles. As to water terminals, the real subject, we are sorry to say Commissioner Smith is right, and of course President Delano wrong. Connecticut has several harbors that should be distributing centers, as they all have rail connections. The most important are New Haven, Bridgeport and New London. New Haven can boast of more abundant dock property than any other city of its size in the world. All of that property is owned by the New York, New Haven & Hartford, and held for no other purpose than to prevent water competition. A large percentage of this property was used successfully previous to its being purchased by the railway.

Terminal property was bought here not long since and when a spur track was asked for, the railway refused to grant it, for no other reason than it would be a competitor to an existing customer. The project was abandoned, and the property now lies idle.

Bridgeport was practically deprived of its water front by the railway in its new layout a few years ago, and has had to make rivers and streams where none existed before. The railway of course did not anticipate any such enterprise on the part of the business men of that growing city when they were made to give up all they had.

New London can boast of *no dock* where it can unload from boat to cars of the New York, New Haven & Hartford, one ton of commercial freight. The only dock that could have been used for such a purpose was sold by the railway and removed.

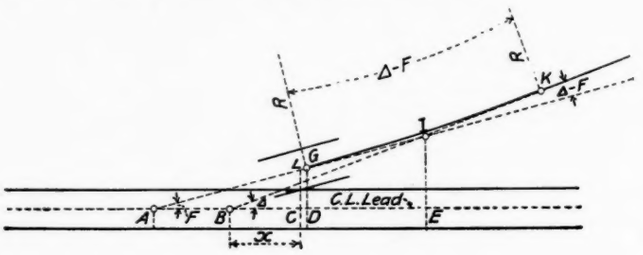
E. S. DOWE,
President, New Haven Towing Company.

LOCATING THE POINT OF FROG.

Albany, N. Y., Nov. 1, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

It was with pleasure that I noted on page 511 in the issue of the *Railway Age Gazette* of September 16, the solution of a problem that has baffled me for several years, viz.: locating point of frog, the heel of which is to be connected by a curve of known radius to a known tangent some distance back from the heel of the frog. The solution referred to is that offered by T. H. Brown, assistant engineer of the B. & O.



Locating the Point of Frog.

Given:

F = *frog angle.*
R = *radius of curve back of frog.*
H = *length of frog from point to heel.*
W = *width of frog at heel.*
Δ = *angle between tangent and main track.*

Then:

$$DE = GI \cos F = R \tan \tfrac{1}{2} (\Delta - F) \cos F.$$
$$CD = H - [\tfrac{1}{2} g \sin F + W \sin \tfrac{1}{2} F].$$
$$AC = CL \cot F.$$
$$CL = \tfrac{1}{2} g + \tfrac{1}{2} g \sec F.$$
$$AC = (\tfrac{1}{2} g + \tfrac{1}{2} g \sec F) \cot F.$$
$$= \frac{\tfrac{1}{2} g \cot F + \tfrac{1}{2} g}{\sin F}$$
$$AC = \tfrac{1}{2} g \cot \tfrac{1}{2} F.$$

Then:

$$AE = DE + CD + AC.$$
$$EI = AE \tan F.$$
$$BE = EI \cot \Delta$$
$$AB = (AE - BE).$$

If

AB is less than AC.
$$BC = x = (AC - AB).$$

If

AB is *greater than AC.*
$$BC = x = (AB - AC).$$

In looking this over I fail to check Mr. Brown completely, however. In the last statement of his axioms, if I may so call them, he says that A C = 4.766 cot F. Can this or any other constant be used in this place? I think not, as the quantity

represented by this constant varies with "F." I have arrived at the accompanying solution as a substitute for the one given by Mr. Brown, but if he can satisfactorily explain how he gets this constant, I would be very glad to withdraw my change.

A. F. SIMPSON.

Baltimore, Md., Oct. 10, 1910.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The solution of this problem given by Mr. Simpson is identical with that of the writer except as to the value of A C. In the former this is given as (½ g. cot ½ F). This is of course correct for the theoretical P. F., but this is not what is used in staking out frog and switch layouts. In staking out work of this character what is desired is the location of the actual P. F. (generally ½ in.) and this point would be from 2 in. to 10 in. back of the point located by (½ g cot ½ F) for frogs No. 4 to No. 20. The value A C = 4.766 cot F is correct for the location of the ½ in. point of a No. 8 frog, and the error in using this value for all frogs varies from 0 to 0.2 ft. for frogs No. 8 to No. 4 and from 0 to 0.3 ft. for frogs No. 8 to No. 20. For frogs commonly used in yard work, i. e., No. 6, No. 7, No. 8 and No. 10, the greatest error is 0.06 ft. In order to make Mr. Simpson's formula applicable to locate the actual ½ in. point of frog the value of A. C. would be

$$A\ C = (½\ g + ½\ g \sec F + ½\ in.) \cot F$$

Of course this value of ½ in. is theoretically incorrect when we consider a line at right angles to the ladder track passing through the center of the P. F., but the difference is too slight to be taken into account.

The formula for A C was put in the form of a constant times a variable in order to render it less cumbersome and at the same time provide a degree of accuracy well within the limits attained in construction, and it is thought that the general formula as stated does provide this.

If extremely accurate results are desired values of A. C. should be

For No. 4 frog, A C = 4.82 cot F
For No. 6 frog, A C = 4.77 cot F
For No. 10 frog, A C = 4.76 cot F
For No. 12 frog, A C = 4.76 sot F
For No. 20 frog, A C = 4.75 cot F

These variations are extremely small and hardly worth taking into account on this class of work where a working formula, as simple as possible, is desired.

However, Mr. Simpson is of course correct in stating that A C cannot theoretically be a product of a variable and a constant. This point should have been explained when the formula was submitted and the writer is glad of the opportunity of doing so now.

T. H. BROWN.

ACCIDENT RECORD—CORRECTION.

The Galveston, Harrisburg & San Antonio Railway,
Houston, Texas, November 26.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

On page 1013 of your issue of November 25 you give an account of train accidents in October, stating that the information is based on accounts published in the local daily newspapers. You show a derailment October 17 on the Southern Pacific, at Chocar, classed as unexplained, in which two persons were killed and two were injured. There was no one killed in this derailment and no one seriously injured. The accident was due to a defective rail, known as a piped rail, with the defect concealed. This rail broke while the train, consisting of a locomotive and thirteen passenger cars, was passing over it. Two passengers sustained injuries, not serious, and several others claimed slight bruises. The broken rail in question was 75-lb., laid in 1900, and showed practically no wear. The accident occurred, not at Chocar, but at Collado.

T. FAY.

THE ATCHISON'S FAIR ATTITUDE TOWARD THE PUBLIC.*

In controversies respecting railway rates attention is generally centered upon the active contestants, who are usually the merchants and shippers and the railway companies. But the public interest in the conservation and development of the country's transportation service reaches far beyond these classes of society. . . . The general interests of the public require that railway companies should be given an opportunity not merely to earn interest and dividends with respect to their existing property, but also to earn an adequate surplus to serve as a basis for providing the money needed for the continual improvement and expansion of railway properties so as to keep up with the progress of civilization, the development of new territory, and the growth of population and business.

The Atchison, Topeka & Santa Fe is one of the great railway properties of the country. It has a mileage of about ten thousand miles, and serves a vast area of country. The original Santa Fe Railroad began business about 1875, but railways were extended too rapidly, and in 1895 the company became hopelessly bankrupt. The present company began business in January, 1896. Roughly speaking, it paid for the property about $337,000,000 in stock and bonds. Since then it has spent in the development of the property not less than $150,000,000, raised by the sale of additional bonds, and fully $50,000,000, more which it has taken out of surplus earnings. That the stock and bond holders have not received an unreasonable share of the earnings is indicated by the fact that the bond interest and stock dividends actually paid have averaged for the last fourteen and a half years 3¾ per cent. per annum. . . . Why has the company had to spend $200,000,000 in fourteen and a half years? For additional and improved equipment, a second track, improved track and roadway, improved terminal facilities, and in part on account of additional mileage. The expenditures on account of additional mileage have averaged for the fourteen and a half years about $4,500,000 per year, but for the year ending June 30, 1910, were nearly $9,000,000, more and more of such work will become essential as the country develops. But by far the greater part of the capital expended has been for additional and improved equipment and for other additions and betterments to lines already in the system. These expenditures tend to increase.

Year ending June 30.

1896 (6 months)	$396,615	1904	$8,109,373
1897	1,301,308	1905	4,312,065
1898	2,848,710	1906	16,402,112
1899	4,292,165	1907	18,168,100
1900	4,452,713	1908	21,457,543
1901	3,581,521	1909	6,241,127
1902	11,030,816	1910	19,632,586
1903	7,835,408		
		Total (14½ yrs.)	$130,062,262

It is the opinion of the officers of the company that in the next few years these expenditures for betterments should continue to average from twenty million to twenty-five million dollars a year, and perhaps more, in order to meet the never-ceasing requirements for additional and improved equipment, and for innumerable improvements of the existing lines. In addition, there should be provided funds for construction of new mileage to the extent of five to ten million dollars a year.

It is not practicable to forecast the more remote future, except to say that there is every reason to believe that all such expenditures will increase continually and progressively. As population and business increase and civilization advances, there is an ever-increasing necessity for the continual remaking of the existing railways and their equipment, and for the construction of additional mileage.

. . . It must be apparent that the raising of enormous amounts of money for improvements and extensions is a prime function of the company, and one of the very highest importance to the public. There are only four ways by which the money for these expenditures can be raised. . . . Surplus earnings

*From an article in *The Outlook*, by Walker D. Hines, chairman of the Executive Committee of the Atchison, Topeka & Santa Fé.

cannot be drawn upon unless there are surplus earnings; nobody will buy stock unless it can be expected to pay reasonable dividends; property which is already fully covered by mortgage cannot be mortgaged anew; and a borrower whose credit is not good (that is, who is not doing a profitable business) cannot borrow money on unsecured bonds or promissory notes. The property of the Santa Fe is covered by first and second mortgages for nearly two hundred and fifty million dollars, and therefore is not available as security for additional mortgage bonds. Fortunately, the success and conservatism of the company created sufficient confidence in the investment value of its common stock to make it practicable for the company in the five years ending June 30, 1910, to raise about one hundred and fifteen million dollars by the sale of bonds convertible into stock. These bonds are not secured by mortgage or otherwise, and the company has been able to sell them on favorable terms solely because the bonds conferred the privilege upon the bondholder to convert them at his option into an equal amount of common stock.

Thus it appears that up to the present time the company would have failed very largely in the performance of the function of raising the needed funds to improve and extend its system but for its ability to raise the larger part of those funds upon the strength of the attractiveness of its common stock. It is clear that its common stock would not have been attractive if the company had not been able to pay a fair dividend upon it (never, however, in excess of 6 per cent).

But it must be remembered that, while the company has spent on the property not less than $150,000,000 of borrowed money, it has also spent upon the property over $50,000,000 of surplus earnings. It is clear that the ability of the company to borrow the $150,000,000 was vastly promoted by, and indeed dependent upon, the fact that it expended fully one-third as much out of earnings. If the company's income had become so reduced that it could not, after paying interest and dividends, expend this fifty millions out of earnings, the company would have had to borrow two hundred millions instead of one hundred and fifty millions. If this had been practicable at all, it would have increased the permanent fixed charges upon the property by not less than two and one-half millions yearly; probably the increase in fixed charges would have been much greater, because the increased borrowing would have made the securities less attractive and would have necessitated the payment of higher interest rates. . . . The theory that improvements and extensions should be made only by borrowing new capital, and that the return on the entire amount of such expenditures will be assured by the increased receipts from such improvements and extensions, fails to work in practice. Many improvements which are necessary and distinctly in the public interest (such as improved station buildings) will never yield any pecuniary return at all.

The increasing demands of the public are responsible for a great many expenditures which do not appreciably increase the profits. The railways at Kansas City have recently found it necessary, in order to handle the increased business through Kansas City, to rearrange and extend their terminals, both freight and passenger, at that place, and have been compelled on account of local public sentiment to provide for the erection of a magnificent passenger station, much of the expense in connection therewith being simply to gratify local pride. The city of Wichita, Kan., is insisting that the Santa Fe elevate its tracks, which at present are upon the surface of a city street. While this is a very proper demand, it is evident that the elevated tracks will be no more profitable than the surface tracks. Increased safety appliances bring little specific benefit, because the constantly growing ideas of injuries as to the amount of damages which ought to be awarded for personal injuries will not more than offset the decrease in the number of such injuries.

The notion is frequently suggested that when earnings are expended upon betterments and improvements the result is that money is unjustly taken from the shipping public and converted to the benefit of the stockholders of the railway companies. . . . The stock of the Santa Fe company has never been increased on account of surplus earnings expended upon the property, and there is no plan for increasing the stock on any such account.

It has been exceedingly fortunate for the country served by the Santa Fe that it has been able to earn enough to pay fair dividends on its stock and to put back large amounts of earnings into the property. The comfort and safety of the traveling public have been enhanced; the business and the convenience of the shipping public have been greatly promoted; new territory has obtained much-needed railways; the demand for railway labor has been greatly increased, and the consumption of railway material and supplies has been vastly enlarged. All this has constituted an important factor in the civilization and in the prosperity of the country.

The theorist may urge that increased business will make up for increased expenses, but the fact is that, after meeting increased operating expenses due to higher wages and prices and to increased expense of public regulation, after meeting increased taxes, and after meeting the interest and dividend requirements, the surplus earnings available for expenditure upon the property threaten to diminish very rapidly.

The amounts of surplus earnings so available have been about as follows for the past five years:

For the year ending June 30.	
1906	$4,500,000
1907	9,600,000
1908	340,000
1909	9,000,000
1910	4,000,000

It is anticipated that there will be very large increases in operating expenses for the year 1910, on account of increased wages of employees, and there will probably be a still further increase in taxes, so the outlook is that the company will have even less to put back into the property for the current year.

The Santa Fe has been an exceptionally prosperous company, and yet the increasing burdens of operation make it imperative that the company should have increased revenues if it is to fulfill the reasonable expectations of the public. If such imperative need exists as to the Santa Fe, it exists even more clearly with respect to numerous other less fortunate railways.

THE INTERSTATE COMMERCE COMMISSION'S OWN INVESTIGATION OF THE COSTS OF RAILWAY OPERATION.

[WITH AN INSET.]

The accompanying tables are taken from figures prepared by order of the Interstate Commerce Commission for use by the commission in its investigation in regard to rate advances. The table for the New York Central & Hudson River is given in full in the form in which it was prepared for the commission. The figures we have selected for other roads, as may be seen from a comparison with the New York Central table, are certain significant ratios, comparing 1910 with a ten-year average, and with the five-year average from 1900 to 1905 and 1906 to 1910. The roads whose figures are complete to date are shown. A foot note explaining minor adjustments in the New York Central table and other tables, which the Interstate Commerce Commisison has included in its exhibit, is omitted in our table because it is a detail which, although it shows with what care the figures have been complied, is, for the purpose of general interest, unimportant. It must be borne in mind in studying the tables that these figures were prepared by a disinterested party —the commission itself—and are not a form of special pleading submitted either by the railways or by the shippers.

A word of explanation is needed in regard to the accumulated surplus available for distribution. This is profit and loss surplus, and, as will be seen from a study of the complete New York Central exhibit, is arrived at before the payment of dividends in the current year:

NEW YORK CENTRAL AND HUDSON R

ITEM.	1901.	1902.	1903.	1904.	Ye 19
A. MILEAGE:					
1. Owned—single track ..... *miles*	810.45	810.25	810.25	808.64	80
2. Owned—all tracks ..... *miles*	2,771.31	2,770.07	2,794.24	2,820.85	2,92
3. Operated—single track ..... *miles*	2,898.67	3,319.55	3,422.66	3,490.26	3,56
4. Operated—all tracks ..... *miles*	6,209.41	7,167.70	7,379.76	7,586.52	7,85
B. COST OF ROAD AND EQUIPMENT	$183,659,202	$186,704,315	$192,214,166	$194,767,868	$197,253,0
Per mile owned—single track	224,125	230,428	237,228	240,859	243,
Per mile owned—all tracks	66,272	67,401	68,789	69,046	67,
C. TOTAL CAPITALIZATION	$308,772,941	$325,691,256	$327,030,546	$332,372,736	$362,664,8
Per mile owned—single track	376,805	401,964	403,617	411,027	448,
Per mile owned—all tracks	111,418	117,575	117,037	117,827	124,
CAPITAL STOCK	115,000,000	131,912,900	132,250,000	132,250,000	132,250,0
FUNDED DEBT	193,772,941	193,778,356	194,780,546	200,122,736	230,414,8
D. TOTAL OPERATING REVENUES	$54,736,994	$68,899,064	$75,430,701	$75,473,951	$78,889,8
Per mile operated—single track	18,883	20,756	22,038	21,624	22,
Per mile operated—all tracks	8,815	9,612	10,221	9,948	10,0
TOTAL OPERATING EXPENSES	35,113,268	45,523,900	52,251,650	54,141,432	55,417,
Per mile operated—single track	12,113	13,714	15,266	15,512	15,5
Per mile operated—all tracks	5,655	6,351	7,080	7,137	7,0
Ratio to total operating revenues ..... *per cent.*	64.15	66.07	69.27	71.73	70.
Analysis of operating expenses under official classification. — MAINTENANCE OF WAY AND STRUCTURES	6,710,193	8,600.032	10,469,570	10,090,893	11,143,7
Per mile operated—single track	2,315	2,591	3,059	2,891	3,1
Per mile operated—all tracks	1,081	1,200	1,419	1,330	1,4
Ratio to total operating revenues ..... *per cent.*	12.26	12.48	13.88	13.37	14.
MAINTENANCE OF EQUIPMENT	6,718,146	9,270,964	10,882,375	11,358,295	11,137,8
Per mile operated—single track	2,318	2,793	3,180	3,254	3,1
Per mile operated—all tracks	1,082	1,293	1,474	1,497	1,4
Ratio to total operating revenues ..... *per cent.*	12.27	13.45	14.43	15.05	14.
TRAFFIC AND TRANSPORTATION EXPENSES	20,386,630	25,916,637	29,152,142	30,677,662	30,991,8
Per mile operated—single track	7,032	7,807	8,517	8,790	8,6
Per mile operated—all tracks	3,283	3,616	3,950	4,044	3,9
Ratio to total operating revenues ..... *per cent.*	37.24	37.62	38.64	40.64	39.
GENERAL EXPENSES	1,298,299	1,736,267	1,747,563	2,014,582	2,143,8
Per mile operated—single track	448	523	510	577	6
Per mile operated—all tracks	209	242	237	266	2
Ratio to total operating revenues ..... *per cent.*	2.38	2.52	2.32	2.67	2.
Analysis of operating expenses between labor and other expenses. — COMPENSATION PAID DIRECT TO LABOR	21,973,007	28,741,065	32,674,653	33,657,360	34,399,4
Per mile operated—single track	7,580	8,658	9,546	9,643	9,6
Per mile operated—all tracks	3,539	4,010	4,428	4,436	4,3
Ratio to total operating revenues ..... *per cent.*	40.14	41.71	43.31	44.59	43.
COMPENSATION PAID GENERAL OFFICERS	231,042	302,357	321,542	345,350	366,8
Per mile operated—single track	80	91	94	99	1
Per mile operated—all tracks	37	42	43	46	
Ratio to total operating revenues ..... *per cent.*	.42	.44	.43	.46	.
MATERIAL, FUEL, AND ALL OTHER ITEMS	12,909,219	16,480,478	19,255,455	20,138,722	20,651,0
Per mile operated—single track	4,453	4,965	5,626	5,770	5,7
Per mile operated—all tracks	2,079	2,299	2,699	2,655	2,6
Ratio to total operating revenues ..... *per cent.*	23.59	23.92	25.53	26.68	26.
TAXES	2,362,367	3,644,464	3,634,627	3,424,507	3,733,6
Per mile owned—single track	2,883	4,498	4,486	4,235	4,6
Per mile owned—all tracks	852	1,316	1,301	1,214	1,2
Per mile operated—single track	815	1,098	1,062	981	1,0
Per mile operated—all tracks	380	508	493	451	4
Ratio to total operating revenues ..... *per cent.*	4.31	5.29	4.82	4.54	4.
OPERATING INCOME	17,261,359	19,730,700	19,544,424	17,908,012	19,739,00
Per mile operated—single track	5,955	5,944	5,710	5,131	5,5
Per mile operated—all tracks	2,780	2,753	2,648	2,360	2,5
Ratio to total operating revenues ..... *per cent.*	31.54	28.64	25.91	23.73	25.0
E. INCOME ACCOUNT:					
OPERATING INCOME FROM RAILROAD OPERATION	$17,261,359	$19,730,700	$19,544,424	$17,908,012	$19,739,00
Per cent. on cost of road and equipment § B	9.40	10.57	10.17	9.19	10.0
ADDITION TO INCOME: (total items 1 and 2 following)	6,172,144	6,857,267	7,502,298	8,273,831	8,411,03
1. Rents received from other roads for the use of road, equipment, and facilities of the operating property	1,682,260	2,031,471	2,272,229	2,275,115	2,188,31
2. Interest on bonds and dividends on stocks in separately operated railroads and income from other miscellaneous property	4,489,884	4,825,796	5,230,069	5,998,716	6,222,72
DEDUCTIONS FROM INCOME: (total of items 1, 2 and 3 following)	15,597,621	18,271,250	18,022,418	18,465,980	19,746,35
1. Rents paid for lease of roads which form a part of the operating property	6,788,638	9,174,239	9,421,474	9,466,767	9,489,99
2. Rents paid to other roads for the partial use of road, equipment, and facilities needed in operating the property	1,041,435	1,316,029	1,262,140	1,678,208	1,939,00
3. Interest accrued on funded and floating debt	7,767,548	7,780,982	7,338,804	7,321,005	8,317,35
CORPORATE INCOME FOR THE YEAR	7,835,882	8,316,717	9,024,304	7,715,863	8,403,69
Per cent. on capital stock outstanding § C	6.81	6.30	6.82	5.83	6.3
F. PROFIT AND LOSS ACCOUNT:					
Accumulated surplus brought forward from preceding year	$11,754,889	$11,769,994	$15,834,667	$15,890,580	$15,911,25
Corporate income for the year	7,835,882	8,316,717	9,024,304	7,715,863	8,403,69
Discounts on securities bought and sold and other profit and loss allocations	—270,777	+3,759,367	—314,233	—75,591	—1,587,02
TOTAL SURPLUS AVAILABLE FOR DISTRIBUTION	19,319,994	23,846,078	24,544,738	23,530,852	22,727,91
Per cent. on capital stock outstanding § C	16.80	18.08	18.56	17.79	17.1
Dividends declared	5,750,000	5,961,411	6,604,158	6,612,500	6,612,50
Additions, betterments, and permanent improvement appropriations	1,500,000	1,750,000	1,750,000	707,099	1,500,00
Sinking and special reserve funds	300,000	300,000	300,000	300,000	300,00
TOTAL SURPLUS APPROPRIATED	7,550,000	8,011,411	8,654,158	7,619,599	8,412,50
Per cent. on capital stock outstanding § C	6.57	6.07	6.54	5.76	6.36
UNAPPROPRIATED SURPLUS CARRIED OVER TO THE FOLLOWING YEAR	11,769,994	15,834,667	15,890,580	15,911,253	14,315,41

NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY.

	Year ending June 30						
	1901.	1902.	1903.	1904.	1905.	1906.	1907.
.....miles..	813.45	810.25	810.25	808.64	808.64	806.70	806.66
.....miles..	2,771.31	2,770.07	2,794.24	2,820.85	2,922.43	2,975.88	3,043.31
.....miles..	2,898.67	3,319.35	3,422.66	3,490.26	3,566.16	3,580.20	3,588.82
.....miles..	6,209.41	7,167.70	7,379.76	7,586.52	7,857.78	7,981.81	8,165.68
.....	$183,659,202	$186,704,315	$192,214,166	$194,767,868	$197,253,050	$201,182,123	$214,313,267
.....	224,125	230,428	237,228	240,859	243,932	249,389	265,680
.....	66,272	67,401	68,789	69,046	67,496	67,604	70,421
.....	$308,772,941	$325,691,256	$327,030,546	$332,372,736	$362,664,845	$379,612,645	$409,046,845
.....	376,805	401,964	403,617	411,027	448,487	470,575	507,087
.....	111,418	117,575	117,037	117,827	124,097	127,563	134,409
.....	115,000,000	131,912,900	132,250,000	132,250,000	132,250,000	149,197,800	178,632,000
.....	193,772,941	193,778,356	194,780,546	200,122,736	230,414,845	230,414,845	230,414,845
.....	$54,736,994	$63,899,064	$75,430,701	$75,473,951	$78,889,896	$86,898,366	$93,138,885
.....	18,883	20,756	22,038	21,624	22,122	24,272	25,952
.....	8,815	9,612	10,221	9,948	10,040	10,887	11,406
.....	35,113,268	45,523,900	52,251,650	54,141,432	55,417,279	61,859,652	69,979,880
.....	12,113	13,714	15,266	15,512	15,540	17,278	19,499
.....	5,655	6,351	7,080	7,137	7,053	7,750	8,570
...per cent..	64.15	66.07	69.27	71.73	70.25	71.18	75.13
.....	6,710,193	8,600.032	10,469,570	10,090,893	11,143,792	12,006,265	11,905,030
.....	2,315	2,591	3,059	2,891	3,125	3,353	3,317
.....	1,081	1,200	1,419	1,330	1,418	1,504	1,458
...per cent..	12.26	12.48	13.88	13.37	14.13	13.81	12.78
.....	6,718,146	9,270,964	10,882,375	11,358,295	11,137,824	13,991,333	15,974,357
.....	2,318	2,793	3,180	3,254	3,123	3,908	4,451
.....	1,082	1,293	1,474	1,497	1,417	1,753	1,956
...per cent..	12.27	13.45	14.43	15.05	14.12	16.10	17.15
.....	20,386,630	25,916,637	29,152,142	30,677,662	30,991,833	33,369,629	39,668,703
.....	7,032	7,807	8,517	8,790	8,691	9,321	11,053
.....	3,233	3,616	3,950	4,044	3,944	4,181	4,858
...per cent..	37.24	37.62	38.64	40.64	39.28	38.40	42.59
.....	1,298,299	1,736,267	1,747,563	2,014,582	2,143,830	2,492,425	2,431,790
.....	448	523	510	577	601	696	678
.....	209	242	237	266	274	312	298
...per cent..	2.38	2.52	2.32	2.67	2.72	2.87	2.61
.....	21,973,007	28,741,065	32,674,653	33,657,360	34,399,441	37,595,336	45,195,730
.....	7,580	8,658	9,546	9,643	9,646	10,501	12,593
.....	3,539	4,010	4,428	4,436	4,378	4,710	5,535
...per cent..	40.14	41.71	43.31	44.59	43.60	43.26	48.53
.....	231,042	302,357	321,542	345,350	366,800	400,778	414,712
.....	80	91	94	99	103	112	116
.....	37	42	43	46	47	50	51
...per cent..	.42	.44	.43	.46	.46	.46	.44
.....	12,909,219	16,480,478	19,255,455	20,138,722	20,651,038	23,863,538	24,369,438
.....	4,453	4,965	5,626	5,770	5,791	6,665	6,790
.....	2,079	2,299	2,699	2,655	2,628	2,990	2,984
...per cent..	23.59	23.92	25.53	26.68	26.19	27.46	26.16
.....	2,362,367	3,644,464	3,634,627	3,424,507	3,733,611	4,257,042	4,061,933
.....	2,883	4,498	4,486	4,235	4,617	5,277	5,035
.....	852	1,316	1,301	1,214	1,278	1,431	1,335
.....	815	1,098	1,062	981	1,047	1,189	1,132
.....	380	508	493	451	475	533	497
...per cent..	4.31	5.29	4.82	4.54	4.73	4.90	4.37
.....	17,261,359	19,730,700	19,544,424	17,908,012	19,739,006	20,781,672	19,097,072
.....	5,955	5,944	5,710	5,131	5,535	5,805	5,321
.....	2,780	2,753	2,648	2,360	2,512	2,604	2,339
...per cent..	31.54	28.64	25.91	23.73	25.02	22.92	20.50
.....	$17,261,359	$19,730,700	$19,544,424	$17,908,012	$19,739,006	$20,781,672	$19,097,072
.....	9.40	10.57	10.17	9.19	10.01	10.33	8.91
.....	6,172,144	6,857,267	7,502,298	8,273,831	8,411,038	9,045,700	11,756,819
l facilities of	1,682,260	2,031,471	2,272,229	2,275,115	2,188,317	2,339,799	2,384,311
s and income	4,489,884	4,825,796	5,230,069	5,998,716	6,222,721	6,705,901	9,372,508
.....	15,597,621	18,271,250	18,022,418	18,465,980	19,746,351	19,838,172	21,176,111
ty.....	6,788,638	9,174,239	9,421,474	9,466,767	9,489,997	9,441,327	9,522,215
cilities needed	1,041,435	1,316,029	1,262,140	1,678,208	1,939,000	2,081,592	2,733,594
.....	7,767,548	7,780,982	7,338,804	7,321,005	8,317,354	8,315,253	8,920,302
.....	7,835,882	8,316,717	9,024,304	7,715,863	8,403,693	9,989,200	9,677,780
.....	6.81	6.30	6.82	5.83	6.35	6.70	5.42
.....	$11,754,889	$11,769,994	$15,834,667	$15,890,580	$15,911,253	$14,315,419	$15,172,622
.....	7,835,882	8,316,717	9,024,304	7,715,863	8,403,693	9,989,200	9,677,780
s.....	—270,777	+3,759,367	—314,233	—75.591	—1,587,027	—595,802	—309,794
.....	19,319,994	23,846,078	24,544,738	23,530,852	22,727,919	23,708,817	24,540,608
.....	16.80	18.08	18.56	17.79	17.18	15.89	13.74
.....	5,750,000	5,961,411	6,604,158	6,612,500	6,612,500	7,036,195	9,461,899
.....	1,500,000	1,750,000	1,750,000	707,099	1,500,000	1,500,000	2,800,000
.....	300,000	300,000	300,000	300,000	300,000	.....	.....
.....	7,550,000	8,011,411	8,654,158	7,619,599	8,412,500	8,536,195	12,261,899
.....	6.57	6.07	6.54	5.76	6.36	5.72	6.86
.....	11,769,994	15,834,667	15,890,580	15,911,253	14,315,419	15,172,622	12,278,709

1908.	1909.	1910.	Ten-year average. 1901 to 1910.	Five-year average 1901 to 1905.	Five-year average 1906 to 1910.	Increase or *Decrease.* *Per cent.*
806.18	805.47	805.48	808.77	811.45	806.10	0.6
3,099.30	3,123.10	3,129.68	2,945.02	2,815.78	3,074.25	9.1
3,587.72	3,587.08	3,587.72	3,462.89	3,339.46	3,586.31	7.4
8,431.60	8,515.01	8,643.39	7,793.87	7,240.23	8,347.50	14.9
$215,964,880	$221,682,653	$252,240,255	$205,998,178	$190,919,720	$221,076,636	15.8
267,887	275,221	313,155	254,705	235,282	274,255	16.5
69,682	70,982	80,596	69,948	67,803	71,712	5.7
$447,196,845	$451,196,845	$491,321,727	$383,490,723	$331,306,465	$435,674,981	31.5
554,711	560,166	609,974	474,165	408,289	540,473	32.3
144,290	144,471	156,988	130,217	117,661	141,717	20.4
178,632,000	178,632,000	222,729,300	155,148,600	128,732,580	181,564,620	41.0
268,564,845	272,564,845	268,592,427	228,442,123	202,573,885	254,110,361	25.3
$90,488,460	$91,370,736	$101,368,411	$81,669,546	$70,686,121	$92,652,972	31.1
25,222	25,472	28,254	23,584	21,167	25,835	22.0
10,732	10,730	11,728	10,479	9,763	11,099	13.6
68,864,280	65,472,863	73,830,935	58,245,514	48,489,506	68,001,522	40.2
19,194	18,252	20,579	16,820	14,520	18,961	30.4
8,167	7,688	8,542	7,437	6,697	8,146	21.6
76.10	71.66	72.82	71.32	68.60	73.39	...
11,966,136	10,455,089	12,929,305	10,627,630	9,402,896	11,852,365	26.1
3,335	2,915	3,604	3,069	2,816	3,305	17.3
1,419	1,228	1,496	1,364	1,299	1,420	9.3
13.22	11.45	12.75	13.01	13.30	12.79	...
12,845,276	15,018,831	16,084,172	12,328,157	9,873,521	14,782,794	49.7
3,580	4,187	4,483	3,560	2,957	4,122	39.3
1,523	1,764	1,861	1,582	1,364	1,771	29.8
14.20	16.44	15.87	15.09	13.97	15.95	...
38,466,226	34,113,187	37,829,233	32,057,188	27,424,981	36,689,396	33.8
10,722	9,510	10,544	9,257	8,212	10,230	24.5
4,562	4,005	4,377	4,113	3,787	4,395	16.0
42.51	37.33	37.31	39.25	38.80	39.60	...
1,925,703	2,032,253	2,298,729	2,012,144	1,788,108	2,236,180	25.1
537	566	642	581	535	623	16.4
229	239	266	258	247	268	8.5
2.13	2.22	2.27	2.47	2.53	2.41	...
43,799,189	39,754,322	45,506,173	36,329,627	30,289,105	42,370,150	39.9
12,208	11,082	12,684	10,491	9,070	11,814	30.2
5,195	4,668	5,265	4,661	4,184	5,076	21.3
48.40	43.51	44.89	44.48	42.85	45.73	...
347,222	305,215	296,625	333,164	313,418	352,910	12.6
97	85	83	96	94	98	4.2
41	36	34	43	43	42	*2.3*
.38	.34	.29	.41	.45	.38	...
24,717,869	25,413,326	28,028,137	21,582,723	17,886,983	25,278,462	41.3
6,889	7,085	7,812	6,233	5,356	7,049	31.6
2,931	2,984	3,243	2,769	2,470	3,028	22.5
27.32	27.81	27.65	26.43	25.30	27.28	...
3,407,016	4,527,237	4,526,556	3,757,936	3,359,915	4,155,957	23.7
4,226	5,621	5,619	4,646	4,141	5,156	24.5
1,099	1,449	1,446	1,276	1,193	1,352	13.3
950	1,262	1,262	1,085	1,006	1,159	15.2
404	532	524	483	464	498	7.3
3.77	4.95	4.47	4.60	4.75	4.49	...
18,217,164	21,370,636	23,010,920	19,666,097	18,836,700	20,495,493	8.8
5,078	5,958	6,414	5,679	5,641	5,715	1.3
2,161	2,510	2,662	2,523	2,602	2,455	*5.6*
20.13	23.39	22.70	24.08	26.65	22.12	...
$18,217,164	$21,370,636	$23,010,920	$19,666,097	$18,836,701	$20,495,493	8.8
8.44	9.64	9.12	9.55	9.86	9.27	
14,754,974	12,309,053	14,885,531	9,996,865	7,443,315	12,550,415	68.6
2,879,157	1,940,859	1,682,634	2,167,615	2,089,878	2,245,352	7.4
11,875,817	10,368,194	13,202,897	7,829,250	5,353,437	10,305,063	92.5
23,133,751	21,520,713	21,883,680	19,765,604	18,020,724	21,510,485	19.3
11,728,594	9,839,671	10,030,913	9,490,384	8,868,223	10,112,544	14.0
1,447,540	1,901,819	1,652,690	1,705,404	1,447,362	1,963,447	35.6
9,957,617	9,779,223	10,200,077	8,569,816	7,705,139	9,434,494	22.4
9,838,387	12,158,976	16,012,771	9,897,358	8,259,292	11,535,423	39.6
5.51	6.81	7.19	6.38	6.41	6.35	
$12,278,709	$11,938,190	$11,174,213	$13,604,054	$14,232,277	$12,975,831	*8.8*
9,838,387	12,158,976	16,012,771	9,897,358	8,259,292	11,535,423	39.6
{ —354,146	—2,795,423 }	—301,502	—284,493	+302,348	—871,333	...
{ (—2,189,140)	(+2,189,140) }					
21,762,950	21,301,743	26,885,482	23,216,919	22,793,917	23,639,921	3.7
12.18	10.70	12.07	14.96	17.70	13.02	...
9,824,760	8,931,600	11,147,679	7,794,270	6,308,114	9,280,427	47.1
.....	1,195,930	.....	1,270,303	1,441,420	1,099,186	*23.7*
.....	.....	.....	150,000	300,000	.....	...
9,824,760	10,127,530	11,147,679	9,214,573	8,049,534	10,379,613	28.9
5.50	5.67	5.00	5.94	6.25	5.71	...
11,938,190	11,174,213	15,737,803	14,002,346	14,744,383	13,260,308	*10.0*

CHICAGO & NORTH WESTERN.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	70.65	64.86	63.05	66.19
Ratio of compensation paid direct to labor to total operating revenues	44.17	40.59	40.01	41.01
Ratio of compensation paid general officers to total operating revenues	.51	.49	.45	.51
Ratio of material, fuel and all other items to total operating revenues	25.97	23.78	22.59	24.67
Ratio of taxes to total operating revenues	3.98	3.71	3.47	3.90
Ratio of operating income to total operating revenues	25.37	31.43	33.48	29.91
Ratio of corporate income to capital stock outstanding	8.03	12.47	14.48	11.33

Total accumulated surplus available for distribution in 1910 was $42,236,470; the ten-year average from 1901 to 1910 was $27,363,392; the five-year average from 1901 to 1905 was $19,905,088; the five-year average from 1906 to 1910 was $34,821,695. This is an increase in the last five years as compared with the previous five years of 74.9 per cent.

CHICAGO, MILWAUKEE & ST. PAUL.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	69.53	63.67	61.76	65.16
Ratio of compensation paid direct to labor to total operating revenues	.....	.....	.....	.....
Ratio of compensation paid general officers to total operating revenues	.....	.....	.....	.....
Ratio of material, fuel and all other items to total operating revenues	.....	.....	.....	.....
Ratio of taxes to total operating revenues	3.81	3.51	3.21	3.74
Ratio of operating income to total operating revenues	26.66	32.82	35.03	31.10
Ratio of corporate income to capital stock outstanding	7.25	8.84	9.68	8.32

Total accumulated surplus available for distribution in 1910 was $66,777,994; the ten-year average from 1901 to 1910 was $41,897,897; the five-year average from 1901 to 1905 was $30,873,775; the five-year average from 1906 to 1910 was $52,922,018. This is an increase in the last five years as compared with the previous five years of 71.4 per cent.

CHICAGO, ROCK ISLAND & PACIFIC.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	73.49	68.57	65.54	70.44
Ratio of compensation paid direct to labor to total operating revenues	42.84	39.75	37.03	41.42
Ratio of compensation paid general officers to total operating revenues	.45	.63	.72	.58
Ratio of material, fuel and all other items to total operating revenues	30.20	28.19	27.79	28.44
Ratio of taxes to total operating revenues	4.38	3.50	3.44	3.52
Ratio of operating income to total operating revenues	22.13	27.93	31.02	26.04
Ratio of corporate income to capital stock outstanding	6.59	8.96	9.82	8.19

Total accumulated surplus available for distribution in 1910 was $18,835,459; the ten-year average from 1901 to 1910 was $19,585,331; the five-year average from 1901 to 1905 was $19,687,213; the five-year average from 1906 to 1910 was $19,483,450. This is a decrease in the last five years as compared with the previous five years of 1.05 per cent.

DELAWARE, LACKAWANNA & WESTERN.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	56.34	57.32	57.14	57.46
Ratio of compensation paid direct to labor to total operating revenues	33.25	35.45	36.00	35.07
Ratio of compensation paid general officers to total operating revenues	.48	.43	.41	.44
Ratio of material, fuel and all other items to total operating revenues	22.61	21.44	20.73	21.95
Ratio of taxes to total operating revenues	3.89	2.04	1.26	2.59
Ratio of operating income to total operating revenues	39.77	40.64	41.60	39.95
Ratio of corporate income to capital stock outstanding	49.77	39.43	29.94	48.64

Total accumulated surplus available for distribution in 1910 was $57,602,085; the ten-year average from 1901 to 1910 was $34,442,890; the five-year average from 1901 to 1905 was $25,223,340; the five-year average from 1906 to 1910 was $43,662,441. This is an increase in the last five years as compared with the previous five years of 73.1 per cent.

IOWA CENTRAL.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	77.17	75.77	78.47	73.64
Ratio of compensation paid direct to labor to total operating revenues	46.16	44.09	47.34	41.52
Ratio of compensation paid general officers to total operating revenues	1.17	1.61	1.83	1.46
Ratio of material, fuel and all other items to total operating revenues	29.84	30.07	29.30	30.66
Ratio of taxes to total operating revenues	2.92	3.15	3.44	2.93
Ratio of operating income to total operating revenues	19.91	21.08	18.09	23.43
Ratio of corporate income to capital stock outstanding	.19	.34	.22	.90

Total accumulated surplus available for distribution in 1910 was $2,219,296; the ten-year average from 1901 to 1910 was $1,619,978; the five-year average from 1901 to 1905 was $875,942; the five-year average from 1906 to 1910 was $2,364,015. This is an increase in the last five years as compared with the previous five years of 269.8 per cent.

PHILADELPHIA & READING.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	61.10	58.86	56.75	60.45
Ratio of compensation paid direct to labor to total operating revenues	37.06	37.69	37.49	37.85
Ratio of compensation paid general officers to total operating revenues	.31	.44	.57	.34
Ratio of material, fuel and all other items to total operating revenues	23.73	20.73	18.69	22.26
Ratio of taxes to total operating revenues	1.26	1.02	1.00	1.03
Ratio of operating income to total operating revenues	37.64	40.12	42.25	38.52
Ratio of corporate income to capital stock outstanding	43.51	32.47	25.54	39.38

Total accumulated surplus available for distribution in 1910 was $18,443,567; the ten-year average from 1901 to 1910 was $13,194,532; the five-year average from 1901 to 1905 was $8,556,795; the five-year average from 1906 to 1910 was $17,832,268. This is an increase in the last five years as compared with the previous five years of 208.4 per cent.

TOLEDO, ST. LOUIS & WESTERN.

	1910.	Ten-year average. 1901 to 1910.	Five-year average. 1901 to 1905.	Five-year average. 1906 to 1910.
Ratio of total operating expenses to total operating revenues	63.24	66.26	68.62	64.37
Ratio of compensation paid direct to labor to total operating revenues	38.43	39.88	40.89	39.10
Ratio of compensation paid general officers to total operating revenues	.88	1.02	1.10	.91
Ratio of material, fuel and all other items to total operating revenues	23.93	25.36	26.63	24.36
Ratio of taxes to total operating revenues	4.36	3.71	3.73	3.68
Ratio of operating income to total operating revenues	32.40	30.03	27.65	31.95
Ratio of corporate income to capital stock outstanding	3.84	2.02	.77	3.26

Total accumulated surplus available for distribution in 1910 was $3,475,019; the ten-year average from 1901 to 1910 was $1,433,853; the five-year average from 1901 to 1905 was $354,191; the five-year average from 1906 to 1910 was $2,513,516. This is an increase in the last five years as compared with the previous five years of 609.7 per cent.

Of the proceeds of a loan of $7,500,000 which the Bolivian government has been authorized to make, $1,400,000 is to be spent on sanitary works and $275,000 on surveys of railways from La Paz to Yungas, Cochabamba to Chimore, Yacuiba to Santa Cruz, and Potosi to Sucre; and $825,000 on various works.

PRESIDENT TAFT ON RAILWAY REGULATION.*

There has not been time to test the benefit and utility of the amendments to the Interstate Commerce law made June 18, 1910. The law as enacted did not contain all the features which I recommended. It did not specifically denounce as unlawful the purchase by one of two parallel and competing roads of the stock of the other. Nor did it regulate the power of corporations engaged in operating Interstate railways to issue new stock and bonds; nor did it authorize the making of temporary agreements between railways, limited to thirty days, fixing the same rates for traffic between the same places.

I do not press the consideration of any of these objects upon Congress at this session. The object of the first provision is probably generally covered by the anti-trust law. The second provision [is being considered by], the special commission consisting of President, Arthur T. Hadley of Yale University, chairman; Frederick C. Strauss, Frederick N. Judson, Professor B. H. Meyer and Walter L. Fisher.

The third proposal led to so much misconstruction of its object, as being that of weakening the effectiveness of the anti-trust law, that I am not disposed to press it for further consideration. It was intended to permit railway companies to avoid useless rate cutting by a mere temporary acquiescence in the same rates for the same service over competing railways, with no obligation whatever to maintain those rates for any time.

SAFETY APPLIANCES.

The protection of employees from personal injury is a subject of the highest importance and demands continuing attention. There have been two measures pending in Congress, one for the supervision of boilers and the other for the enlargement of dangerous clearances. Certainly some measures ought to be adopted looking to a prevention of accidents from these causes. It seems to me that with respect to boilers a bill might well be drawn requiring and enforcing by penalty a proper system of inspection by the railway companies themselves which would accomplish our purpose. The entire removal of outside clearances would be attended by such enormous expense that some other remedy must be adopted. By act of May 6, 1910, the Interstate Commerce Commission is authorized and directed to investigate accidents, to report their causes and its recommendations. I suggest that the commission be requested to make a special report as to injuries from outside clearances and the best method of reducing them.

VALUATION OF RAILWAYS.

The Interstate Commerce Commission has recommended appropriations for the purpose of enabling it to enter upon a valuation of all railways. This has always been within the jurisdiction of the commission, but the requisite funds have been wanting. Statistics of the value of each road would be valuable for many purposes, especially if we ultimately enact any limitations upon the power of the interstate railways to issue stocks and bonds, as I hope we may. I think, therefore, that it would be wise to make a reasonable appropriation to enable the Interstate Commerce Commission to proceed with due dispatch to the valuation of all railways. I have no doubt that railway companies themselves can, and will, greatly facilitate this valuation and make it much less costly in time and money than has been supposed.

FRAUDULENT BILLS OF LADING.

Forged and fraudulent bills of lading purporting to be issued against cotton, some months since, resulted in losses of several millions of dollars to American and foreign banking and cotton interests. * * * For the protection of our own people and the preservation of our credit in foreign trade I urge upon Congress the immediate enactment of a law under which one who, in good faith, advances money or credit upon a bill of lading issued by a common carrier upon an interstate or foreign shipment can hold the carrier liable for the value of the goods described in the bill at the valuation specified in the bill, at least to the extent of the advances made in reliance upon it. Such liability exists under the laws of many of the states. I see no objection to permitting two classes of bills of lading to be issued: (1) Those under which a carrier shall be absolutely liable, as above suggested, and (2) those with respect to which the carrier shall assume no liability except for the goods actually delivered to the agent issuing the bill. The carrier might be permitted to make a small separate specific charge in addition to the rate of transportation for such guaranteed bill, as an insurance premium against loss from the added risk, thus removing the principal objection which I understand is made by the railways to the imposition of the liability suggested, viz., that the ordinary transportation rate would not compensate them for the liability assumed by the absolute guaranty of the accuracy of the bills of lading.

I further recommend that a punishment of fine and imprisonment be imposed upon railway agents and shippers for fraud or misrepresentation in connection with the issue of bills of lading issued upon interstate and foreign shipments.

* Extract from Message to Congress, December 6, 1910.

FOOTBALL TRAFFIC ON THE NEW HAVEN.

The returns for railway football traffic on the New Haven this year, being presented in somewhat different shape from heretofore, are significant as allowing a full comparison of New Haven's two "biggest" football games, namely the Yale-Harvard games at New Haven, which are two years apart. They also allow a further, if somewhat rough, study of the effects of the automobile on railway travel, which is made elsewhere in the editorial pages. Last year, at the Yale-Princeton game in New Haven, the total number of football passengers was 32,295. This rose to 35,763 last month. In both cases "excess of regular business" includes the increased passenger business on the day before and the day after the game.

The total receipts last month were $72,376, as contrasted with $45,058 at the Princeton-Yale game last year. This obviously is due to the "long haul" between Boston and New Haven, as compared with the shorter haul between New Haven and New York. But there was an increase also of 1,000 in the number of Boston-New Haven football passengers and of $4,606 in the same day of revenue as compared with two years ago. This is attributed to the sentimental factor of expectation this year of a Harvard victory in the game and its after-joys—a hypothesis probably correct. Had a forecast of the actual tie game been accepted, it would very likely have lost the New Haven company some thousands of dollars.

Comparison of the football "bulge" of traffic with the regular traffic in passengers of the New Haven system is something more than a mere railway curio. The total passenger receipts of the company for the last fiscal year on its 4,361 single track miles owned and leased were $24,885,864, or an average of $68,180 per day, including Sundays. The $72,378 of football receipts exceeded this by $4,198, to which may justly be added $1,693—representing 33,840 passengers—or excess over business of an ordinary Saturday on the New Haven trolley system, controlled by the steam corporation, besides indefinite receipts on its outlying trolley lines and on its New Haven boats. In respect to actual profits of the football business, however, the statement of President Mellen some years ago may be cited. He emphasized losses due to the obstruction on the system of regular passenger and freight business due to the day's football traffic, to say nothing of the risk of costly accident.

Thus far, however, the New Haven has for many years handled its football rush without any mishap worth the mention—last month without any mishap at all—while on its local trolley system the breaking of one fender of an automobile was the limit. Between New York and New Haven the company has four tracks. Eastward and beyond these divide into two double track routes to Boston via Springfield and Providence, respectively. But at New Haven the lines converge at a station not too ample, with but a single frontage on the tracks and served in traffic

cityward directly by but one double track trolley line. The task, too, is amplified by the complexities of handling special trains, locating them for return passengers after the game and applying a "group" system to individual cars.

All this involved a large output of special railway literature as instructions for the day. The instructions fill 26 large pages for the railway employees alone, besides 22 pages of leaflets for the instruction of passengers, the latter giving location of return trains and special cars, diagram of entrances and seats at the football field, trolley and automobile routes, a practical map of the city, as well as of the station and tracks, and a mass of other pertinent information, all going far to solve successfully the problem of handling the inrush and outrush of more than 26,000 passengers on a line with great normal density of traffic, especially on a Saturday.

Annexed are the schedules of the service for the day, summaries of the volume of traffic handled and the financial receipts, absolute and compared with 1908:

NEW YORK-NEW HAVEN SCHEDULE.

Train.	New York.	New Haven.	Passrs.	Cars.
A	7:55 A.	9:50 A.	290	12
B	9:00 A.	10:47 A.	878	12
C	9:20 A.	11:13 A.	716	12
D	9:25 A.	11:25 A.	284	10
F	9:30 A.	11:26 A.	370	10
G	9:40 A.	11:32 A.	855	12
H	9:50 A.	11:41 A.	648	12
I	10:02 A.	11:50 A.	455	12
2/10	10:03 A.	11:48 A.	114	8
J	10:10 A.	12:06 P.	338	10
K	10:15 A.	12:12 P.	304	10
M	10:35 A.	12:33 P.	804	12
N	10:55 A.	12:50 P.	641	13
O	10:45 A.	12:44 P.	298	10
P	10:50 A.	12:44 P.	436	10
46	8:01 A.	9:50 A.	395	11
50	9:16 A.	11:09 A.	675	12
10	10:00 A.	11:36 A.	148	7
12	10:03 A.	12:09 P.	439	12
52	11:01 A.	12:55 P.	500	12
54	12:01 P.	1:41 P.	200	11
Q	*11:35 A.	12:04 P.	303	12

Train.	New Haven.	New York.	Passrs.	Cars.
15	4:19 P.	6:00 P.	149	5
A	4:21 P.	6:17 P.	922	12
B	4:35 P.	6:27 P.	896	12
C	4:48 P.	6:36 P.	1,078	12
G	5:07 P.	7:00 P.	1,318	12
H	5:26 P.	7:45 P.	712	12
I	5:54 P.	7:51 P.	658	12
D	6:05 P.	8:01 P.	284	10
F	6:14 P.	8:06 P.	327	10
J	6:20 P.	8:15 P.	310	10
K	6:26 P.	8:39 P.	284	10
O	6:32 P.	8:56 P.	284	10
Ex. 2/10	6:30 P.	8:25 P.	132	8
P	6:37 P.	8:45 P.	387	10
M	Annulled.			
N	Annulled.			
17	5:16 P.	7:11 P.	760	12
55	6:27 P.	8:21 P.	317	12
21	6:58 P.	9:10 P.	357	11
57	7:12 P.	9:06 P.	261	11
59	8:01 P.	9:42 P.	473	9
23	8:23 P.	10:00 P.	103	6
25	9:31 P.	11:22 P.	290	11

NEW HAVEN-BOSTON SCHEDULE.

Train.	Left Boston.	Arrd. New Haven.	Cars.	No. Passrs.
61	8:00 A.	11:54 A.	10	390
BA	8:05 A.	12:03 P.	10	314
BB	8:10 A.	12:12 P.	10	329
BC	8:15 A.	12:31 P.	10	415
BD	8:20 A.	12:36 P.	10	293
BE	8:25 A.	12:50 P.	10	280
BF	8:39 A.	12:55 P.	10	450
BG	8:41 A.	1:11 P.	10	681
HA	8:00 A.	11:55 A.	8	411
HB	8:32 A.	12:39 P.	7	568
HC	8:35 A.	1:07 P.	7	496
SB	10:40 A.	12:24 P.	10	488
SC	10:55 A.	12:58 P.	11	359
SD	(a) 8:50 A.	10:20 A.	10	342
SE	(c) 10:50 A.	11:50 A.	10	372

Train.	Left New Haven.	Arrd. Boston.	Cars.	No. Passrs.
BF	5:12 P.	9:12 P.	10	430
BA	5:15 P.	9:41 P.	10	344
BB	5:25 P.	10:12 P.	10	401
BC	5:35 P.	10:25 P.	10	339
BH	5:40 P.	10:15 P.	4	131
BD	5:45 P.	10:35 P.	10	280
BG	6:01 P.	10:54 P.	10	677

*Left Bridgeport.
(a) Left Springfield.
(c) Left Hartford.
(b) Arrived Springfield.
(d) Arrived Springfield.

Train.	Left New Haven.	Arrd. Boston.	Cars.	No. Passrs.
BE	6:45 P.	10:58 P.	10	261
HB	4:50 P.	8:23 P.	7	519
HC	4:58 P.	8:44 P.	7	529
HA	5:28 P.	10:05 P.	8	246
SB	5:48 P.	7:27 P.	10	598
SC	6:13 P.	7:57 P.	11	403
SD	5:00 P.	(b) 6:48 P.	10	732
SE	6:20 P.	(d) 8:08 P.	10	437

APPROXIMATE REVENUE ON ACCOUNT OF FOOTBALL GAMES.

	1910 No. Passrs.*	1910 Revenue.	1908 No. Passrs.*	1908 Revenue.	Increase No. Passrs.*	Increase Revenue.
Special ticket business—						
New York	12,362	$19,161	12,952	$19,428	†590	†$267
Boston	9,582	25,455	8,582	20,849	1,000	4,606
Providence	214	747	356	697	†142	50
Springfield	236	291	592	740	†356	†448
Hartford	918	688	1,218	913	†300	†224
Bridgeport	1,500	525	1,214	425	286	100
Other points	1,538	987	1,750	1,127	†212	†139
	26,350	$47,854	26,664	$44,179	†314	$3,674
Excess regular bus...	9,413	14,565	13,113	18,355	†3,700	†3,790
	35,763	$62,419	39,777	$62,534	†4,014	†$114
Parlor and sleeping cars—						
New York	.....	$2,130	.....	$2,453	.....	†$323
Boston	.....	4,866	.....	3,743	.....	1,123
Other points	.....	3,684	.....	3,369	.....	315
	.....	a$9,958	.....	a$8,765	.....	a$1,193
GRAND TOTAL	35,763	$72,377	.....	$71,299	.....	$1,079

* One-way. † Decrease. a Net after deducting amount due Pullman Company.

The accuracy of the running time, averaging about two hours on the crowded New York division, will be noted and, as a curiosity in train crowding, the after-game train leaving New Haven at 5:07 p. m. with its 1,318 passengers in 12 cars—about 110 passengers per car—with the train just preceding a good second in passenger capacity—including standing room.

Some of the more important and suggestive instructions for the train service of the day follow:

The schedules and instructions contained herein shall not be construed to confer track, running or time-table rights to any train.

Familiarize yourselves with the time of all trains, both special and regular, and also with the special instructions contained herein.

All specials to change power at Stamford (Tower 38), except those making station stop.

Harlem River.—Engine 292 to be headed east and subject to call at any time during the day to handle wrecker.

New Rochelle.—Regular wire train to be ready and subject to call at any time during the day.

New Haven.—Engines arriving on BH 1 and the Harlem River Pier Local—one headed east and one west—to be ready and subject to call at any time during the day to handle wrecker.

Midway.—Engines 265 and 280—one headed east and one west—to be ready and subject to call at any time during the day to handle wrecker.

Providence.—Engines 701 and 765—one headed east and one west—to be ready and subject to call at any time during the day to handle wrecker.

Hartford.—Engines 297 and 419—one headed east and one west—to be ready and subject to call at any time during the day to handle wrecker.

Readville.—Engine 908, headed west, to be ready and subject to call at any time during the day to handle wrecker.

Westmoreland coal to be furnished engines of all specials. Coal shovellers and fire cleaners will be located at Cedar Hill and ash pit, New Haven, where coal will be located in cars.

The working limits of work trains must be restricted as necessary to absolutely prevent interference with passenger trains during the movement of football service.

Chief dispatchers must see that frieght trains clear all specials and first-class trains at least thirty (30) minutes during the movement of football service.

Drawbridges must not be opened within fifteen (15) minutes in advance of any special or first-class train during the movement of football service, except in case of extreme necessity, and chief dispatchers shall see that towermen are instructed accordingly.

Operators in block stations must use great care in plunging for the release of block, so that there will be no delays on account of signal failures, and must announce and clear up all trains clearly and promptly.

Enginemen are cautioned to use care in approaching all congested terminals, particularly New Haven, Hartford and Stamford, and proceed only as the way is known to be clear.

NEW HAVEN TERMINAL.

Special Instructions.

Between towers No. 78 and 79, in both directions, trains must run carefully, prepared to stop at any point and proceed only as they know the way to be clear.

Conductors will, whenever possible, station themselves on the rear end to personally superintend the flagging.

Conductors of special trains must notify passengers to unload promptly, as trains will be moved to distant part of yard.

Closets must be locked from arrival to departure of trains.

Immediately on arrival at New Haven, conductors of special trains will leave a duplicate of Form T 418 at station master's office. Particular attention is called to reporting correct engine numbers, with full name of conductor and engineer.

Conductors must see that all articles left by passengers after leaving cars are delivered to station master's office.

Engines when released from their trains will turn, spark, water, etc., promptly returning to their trains ready for the return movement.

Train crews must remain with their trains to assist and direct passengers,

see that their cars are properly carded, and do everything in their power to facilitate the work in yards.

Conductors must see that all cars are properly coupled, and that their trainmen have cars well lighted before 3:30 p. m.

Conductors and trainmen will call frequently the destination of their trains, announcing the stops.

At completion of inspection, the inspectors will notify the rear brakeman, who will signal his conductor from the rear platform of rear car.

Conductors and enginemen must be prepared to depart from New Haven by 3:30 p. m., and the absence of any member of their crew must be immediately reported to the station master's office by the conductor.

Trains departing from New Haven requiring train orders will receive them at telegraph station office in train master's office.

TIE PLATES ON AMERICAN RAILWAYS.

Ninety-eight answers have been received, from engineers on eighty railways in the United States, Canada and Mexico, to circular letters from the *Railway Age Gazette* asking questions about forms of tie plates. On an editorial page in this issue the facts indicated in these letters are discussed. Our questions were:

1. A blue print of the standard you may have adopted, or else dimensions and trade name or description of lugs, ribs, claws or corrugations?
2. Your use of them on bridges? Curves? Tangents? Soft wood ties only?
3. Set on the ties or countersunk?
4. Your opinion on malleable iron tie plates.
5. On all British railways the rails are set in their chairs so as to have an inward cant of about 1 in 20. The wheels are coned 1 in 20. so as to have a theoretical complete contact. On a number of American railways, tie plates, slightly wedge shaped, are used to cant the rail inwardly. We should like to have your experience or opinion of the results of a cant made by thickened tie plates.
6. Can a tie plate be made effective as an anti-creeper?

There is a substantial agreement as to certain principles of practice: Where tie plates are used at all, they are put on all sharp curves, whether ties are soft or hard wood. Treated ties and soft wood ties are protected whether on curve or tangent. Hard wood ties in tangent are protected only where the traffic is quite heavy. Bridges are ordinarily plated, except when the ties are so close together as to give a great bearing area per rail. Tie plates are not countersunk.

In the captions of the accompanying drawings we have used the word "transverse" when the ribs are transverse to the fibers of the tie, and "longitudinal" when they run parallel to the tie.

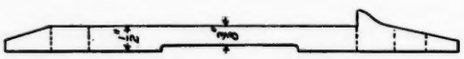
H. T. Douglas, chief engineer Wheeling & Lake Erie, prefers malleable iron to steel, "the objection to the latter being manifest and accentuated on roads handling any number of refrigerator cars. No tie plate under modern rolling stock that is not at least ⅜ in. thick, and preferably ½ in., in my judgment can be justified in the economics of railway maintenance, as the period of their usefulness is too severely limited. A tie plate to be effective should form cohesion between the rail and tie. I believe that malleable iron is vastly superior to steel for tie plates. The injurious effects on steel tie plates from the drippings from refrigerator cars, sulphuric gases, sulphuric acid, and corrosion from moisture, are very much greater than in any form of iron subjected to like conditions. The malleable iron is a radical improvement and is the only proper metal yet introduced for tie plates. As to canting rails, I believe the British practice is correct. It is the ideal track construction, but the poor class of labor we have prevents many refinements. All tie plates with a shoulder act to some extent as anti-creepers, but none that I have observed are effectual, particularly on railways with heavy descending grades."

A. O. Cunningham, chief engineer Wabash, believes a slight inward cant is good and favors a wedge shaped tie plate for that reason. He is doubtful as to the utility of a tie plate for preventing rail creeping, believing an anti-creeper should have a bearing against the side of the tie, instead of depending on the spike for resistance.

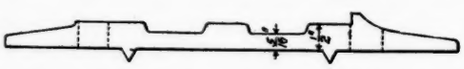
C. H. Spencer, engineer Washington Terminal Company, reports success at some very difficult places in using tie plates as anti-creepers in connection with slotted angle bars at the joints. But he finds that, in general, a good anti-creeper is desirable.

John D. Isaacs, consulting engineer Harriman Lines, says that for equal strength the malleable iron tie is heavier and costs more than one of steel, consequently rolled steel tie plates are used exclusively. The practice of canting rails is not advocated and is considered to be hardly practicable with the Continuous joint. He does not think a tie plate can be made effective as an anti-rail creeper, as any attempt to rigidly attach the tie plate to the rail tends to break the flange.

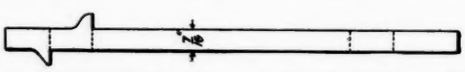
S. B. Clement, chief engineer Temiskaming & Northern Ontario, says: "I have had no experience with the use of malleable iron tie plates, except a combination tie plate and rail brace. This combination tie plate no doubt has served a good purpose on the sharper curves, but I believe similar results could have been obtained by using shoulder tie plates on each tie, instead of the combination tie plate on every third tie and our standard tie plates on the intermediate ties."



Flat Plate, 6 in. x 9 in.; Central of New Jersey.



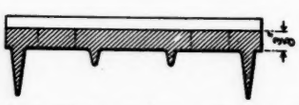
Transverse Ribbed Plate, 6½ in. x 9 in.; Kansas City Terminal.



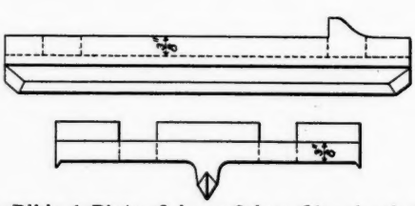
Transverse Ribbed Plate, 7 in. x 9 in.; Washington Terminal.

Transverse Ribbed Plate, 5 in. x 8 in.; Intercolonial.

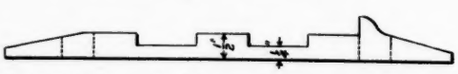
Longitudinal Ribbed Plate, 6½ in. x 8¾ in.; Chicago & Eastern Illinois.



Longitudinal Ribbed Plate, 5 in. x 9 in.; New York, New Haven & Hartford.



Transverse Ribbed Plate, 6 in. x 8 in.; Cleveland, Cincinnati, Chicago & St. Louis.



Flat Plate, 7½ in. x 8¾ in.; El Paso & South Western.

H. J. Pfeifer, engineer maintenance of way Terminal Railroad Association of St. Louis, believes a slight inward cant of rails desirable, and the tie plate the proper place in which to bring this about. He has had very little experience in the matter of canting the rails and hesitates to express a definite opinion. His company purchased for experimental use a number of the Clark malleable iron tie plate and anti-creeper, but they have been in use too short a time for an opinion to be given as to their merit. He is doubtful as to the value of any of the present tie plates when used as anti-creepers, but

believes it is possible to design a combination that will do the work and sell at a reasonable price.

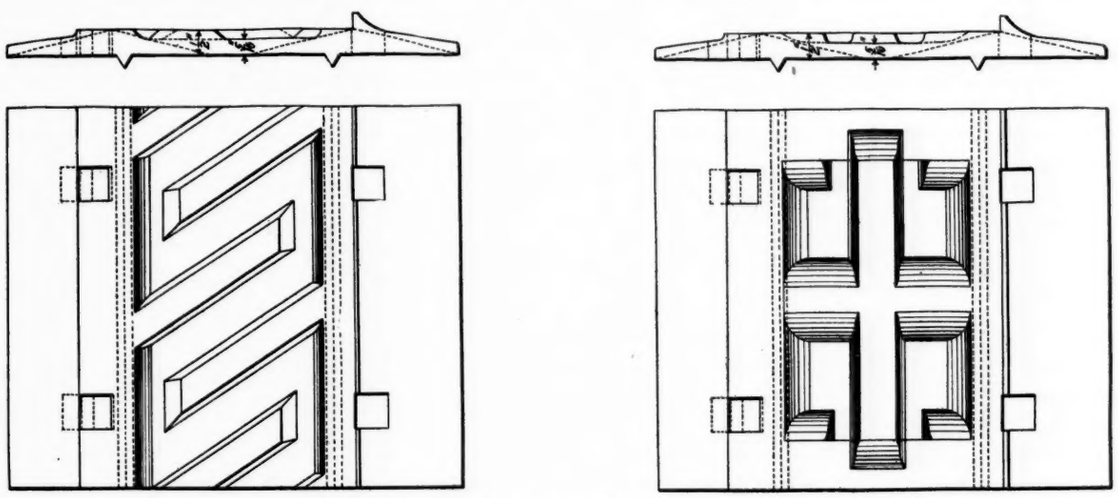
S. G. Freshman, general manager Sierra Railway, has tried canting the rails with such success that in future even more cant will be used, first tie plates having a slope of 1 in 56. He further says: "Our rail is light and the tendency is to spring under a load and to force up and loosen the spikes. By narrowing the distance between the spike holes a rigid fit is made and spikes are firmly retained in place."

M. C. Byers, chief engineer St. Louis & San Francisco, considers malleable iron plates better than steel plates, the only objection being the higher cost. He can see no benefit from canting the rail and has had no experience with combined tie plates and anti-rail creepers: He says: "Their cost would probably exceed the cost of a simple tie plate by such an amount that one could afford to purchase separate anti-creepers and separate tie plates and save money. There are very few cases where three or four anti-creepers to the rail will not hold the rail from creeping." He uses metal tie plates on sharp curves, but on treated ties on straight track he is using wooden tie plates; these, however, are used only to avoid the first cost of steel tie plates.

R. K. Brown, engineer maintenance of way San Pedro, Los Angeles & Salt Lake, reports as follows on the tie plate as an anti-creeper: "We use the ordinary hook-head track spike, 5½ in. x 9/16 in. Our rail base is 4 13/16 in. broad, A. S. O. E. standard 75 lb. rail. This makes a close fit between the back of the spike and the outside of the spike hole in the plate, causing the spike to slightly grip the rail in driving We have considerable mileage of rail laid on 2 per cent. grades with this style of tie plate and find that there is almost no indication of the rail creeping under these conditions. Some of the track has been down for five years, and while the speed is not high, the loads and motive power are heavy. Whether these plates, so punched, will continue to hold the rails in position indefinitely remains to be seen. We hope it will." The plate used on this line has a thickness of 7/16 in., with two channels under the rail and parallel with it, 1 in. wide x 3/16 in. deep. Two spike holes are punched for each flange, the distance between them being 4 11/16 in. for the 4 13/16 in. rail base.

J. B. Berry, chief engineer Rock Island Lines, reports that, "after two years of experience with malleable iron tie plates and screw spikes on a piece of high speed track very difficult to maintain to line and gage, we are favorably impressed with malleable iron for tie plates, provided they are made of sufficient thickness and bearing area to distribute the load. We are opposed to canting the rail. In theory, with a perfect wheel tread there may be a more complete contact of wheel with rail. As a matter of fact, the average condition of all wheels is a mean between the perfect tread and the maximum wear permissible, or a 50 per cent. condition of wheel tread; and, with wheels squared true, the bearing is as great on the rail as it would be were the rails canted. It is an open question whether wheel and rail wear would be reduced, providing all railways canted the rail equally. I am opposed to the use of a tie plate as an anti-creeper, since it depends on the resistance of spikes to prevent its creeping, with a consequent shearing of spikes and ultimately spike-killing of tie. The anti-creeper which bears against the side of the tie does less damage to the tie and is equally or more effective than a tie plate form of anti-creeper."

C. H. Ewing, engineer maintenance of way Philadelphia & Reading, gives the following experience with the plates as anti-creepers: "In a recent installation on a grade of 175 ft. per mile, it was found that rails did not creep as much after tie plates were installed as previously, but they did not prevent creeping entirely, although the conditions on this grade are exceptionally bad, due to heavy loaded traffic on the descending grade. Under ordinary conditions anti-creepers are not necessary where proper tie plates are used." His rule in putting in tie plates is: First, tie-plate low side of curves where there is heavy freight traffic and where curves are elevated for high speed passenger trains; second, tie plate high rail on curves; then tie-plate tangents, after all curves are provided for.



Transverse Ribbed Plates, 7½ in. x 9 in.; Atchison, Topeka & Santa Fe.

W. C. Cushing, chief engineer maintenance of way Pennsylvania Lines West, reports that his rather limited experience with malleable iron tie plates has given him a favorable opinion of the material. In addition to the standard tie plate the company is experimenting with special plates for use with screw spikes in treated ties. On the special plates there are no projections on the bottom and the plates are somewhat larger than the standard, on account of the softness of the wood and the long life expected from the ties and the plates. Thomas H. Johnson, consulting engineer Pennsylvania Lines West, says: "We laid an experimental piece of track with bevelled tie plates, canting the rail to meet the coning of the wheels. The result indicated no advantage gained thereby. It is a theoretical refinement, the supposed advantage of which is nullified by the practical fact that the majority of wheels passing over the track have the treads more or less worn, thus destroying the theoretical relations of wheel and rail."

L. R. Zollinger, engineer maintenance of way Pennsylvania, says: "We use rail anchors where necessary. We have been quite successful in some experiments with an anti-creeping tie plate of standard cross section made long enough to tie the joint to four or more ties instead of two ties. This form of anti-creeper is used in the New York tunnels on account of heavy grades." This plate, which is rolled in one piece, consists, virtually, of four plates joined by a strap 3¾ in. wide.

Ralph Budd, chief engineer Oregon Trunk, believes the malle-

able iron tie plate has some advantage over the steel plate for durability, especially where a large number of refrigerator cars run over the track and the brine drippings are considerable. He believes the inward slope of 1/16 in., the standard tie plate on his road, has a theoretical advantage, but is a nicety of design without much practical value. The extra thickness on the outside of the plate is good, for this is the place where tie plates commonly buckle. He thinks that diagonal corrugations on the upper side of tie plate should help to prevent rail creeping, but he has had no experience on which to base a conclusion.

J. P. Congdon, supervising engineer Oregon Short Line, does not favor canting the rails, and believes the springing of the rail and tie underneath passing trains soon loosens the spikes so the tie plate is of little use as an anti-creeper.

G. W. Vaughan, engineer maintenance of way New York Central, has found that shoulder tie plates when three or four spikes are driven through them act as anti-creepers. The spikes seem to wedge or slightly grip the base of the rail and thus hold it. His tie plates at present are rolled of the same thickness. In order to slightly cant the rail inward, the plates are made from ¼ to ⅜ inch longer on the shoulder or outside than on the non-shoulder or inside. So far he has found that this is sufficient to cant the rail, hold it in its correct position and require the passing wheels to fully cover the top of the rail.

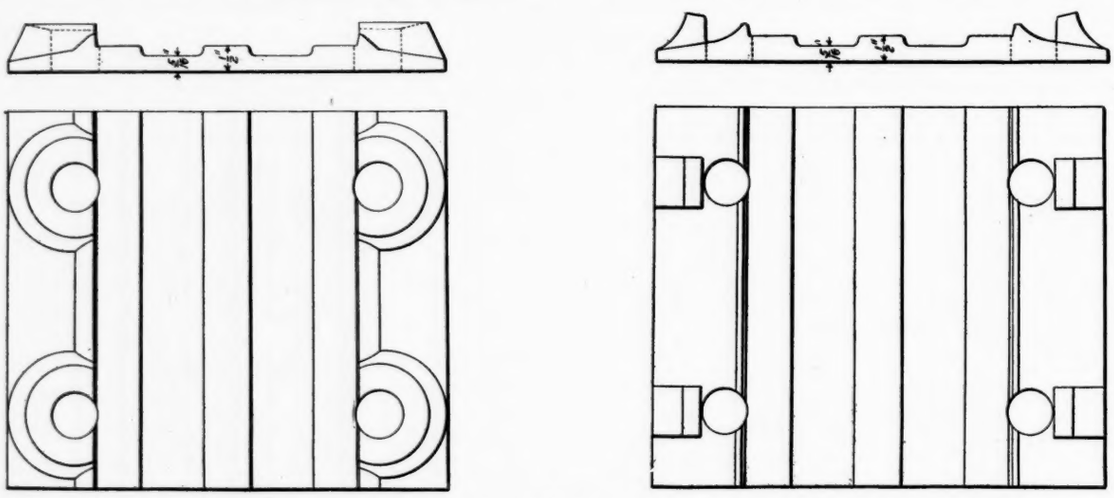
W. J. Benton, assistant engineer Missouri Pacific, says: "I am personally very much in favor of giving the rail an inward cant, such as is the practice on British railways. In laying new rail the ties should be so adzed that the first wear comes outside of the ball of the rail. On curves, except where the elevation is excessive, I believe the inner rail should be laid vertical and the outer rail should have an inward cant." John R. Leightly, engineer maintenance of way Missouri Pacific, has had some experience with 85-lb. rail canted inwardly about ⅛ in. on curves, and believes it to be good practice. The anti-creeper tie plate has been considered by him and he believes that possibly such a tie plate may some day be designed. He thinks that any method of clamping the rail to the plate will be unsuccessful, as reversal of pressure will loosen the grip, the reversal of pressure being bound to occur with the usual forward and backward movement of rail. In working on a design for a tie plate he once hit on the scheme of rolling the edge of the rail base scolloped and designing a shoulder tie plate with a corresponding scollop to engage the base of rail. He found, however, that this scheme had been patented a number of years before, and, inasmuch as he had never heard of it being used, concluded that it had no merit.

R. G. Kenly, chief engineer Minneapolis & St. Louis, says: "A tie plate is effective as an anti-creeper insofar as the strengthening of the rail supports reduces wave motion; and, by binding the tie more firmly to the rail base by the metal of the tie plate supporting the back of the spikes, reduces the tendency of the tie to get slewed or out of square."

F. H. Bainbridge, resident engineer Milwaukee, Sparta & Northwestern, says: "I think that tie plates should not be used as anti-creepers, and that the use of anti-creepers should be limited. I find that anti-creepers bunch the ties on curves and do not accomplish the ends for which they are intended. On bridge work, where ties can be held, I have found anti-creepers satisfactory."

T. H. Hickey, roadmaster Michigan Central, says: "Where tie plates are applied continuously on every tie, as in laying heavier rail or laying new track, tie plates are set on ties; where used in tie renewals, they are countersunk. I would not, however, recommend their use in track where hard and soft wood ties are mixed, with tie plates applied only on the soft wood. Such use may prevent a uniform bearing for the entire length of rail base, unless neighboring ties are adzed to the same plane. If creosoted ties are in, or may be put in service, the question of adzing too freely should be considered, as we know adzing to be detrimental to treated wood."

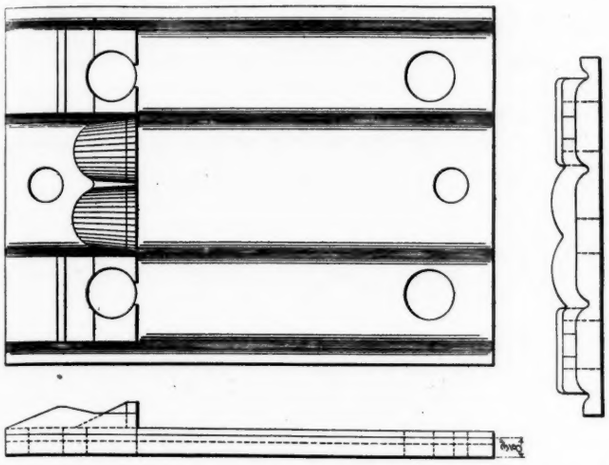
Thomas Money, general roadmaster Louisville & Nashville says: "I do not believe that a tie plate can be made effective as an anti-creeper without sacrificing its efficiency as a means of protecting the tie and preserving the gage of the track. A very important feature of the tie plate is that it should adhere to the tie and that there should be no movement of the plate on the tie. If a tie plate be used to resist the creeping of the rail, its hold on the tie is apt to be destroyed. There will also be a tendency of the tie to overturn in its bed, resulting in irregularities in the line, surface and gage of the track, and injury to the tie. I think the logical point at which to resist the tendency of the rail to creep is at the side of the tie about midway between the top and bottom."



Experimental Plates for Screw Spikes, 7½ in. x 9 in.; Atchison, Topeka & Santa Fe.

William M. Kennedy, division engineer Lehigh Valley, thinks the wedge shaped tie plate an improvement over the flat plate, and also believes a tie plate can be made that should be effective as an anti-creeper. E. B. Ashby, chief engineer Lehigh Valley, favors the wedge shaped tie plate with rail having sloped sides and head, but does not believe a tie plate can be made effective as an anti-creeper.

R. C. Young, chief engineer Lake Superior & Ishpeming says: "We prefer the plates with the ⅜-in. lugs running crossways of the grain of the wood. We have tried the so-called flange plates and find that they do not resist the thrust as well as the lugs and also leave an opening for water to come in, causing rot to the tie. I think the Sellers tie plate meets our requirements better than any we have used. It adheres to the tie better and all the metal adds to the strength of the plate itself."



Screw Spike Plate, 7 in. x 9¾ in.; Delaware, Lackawanna & Western.

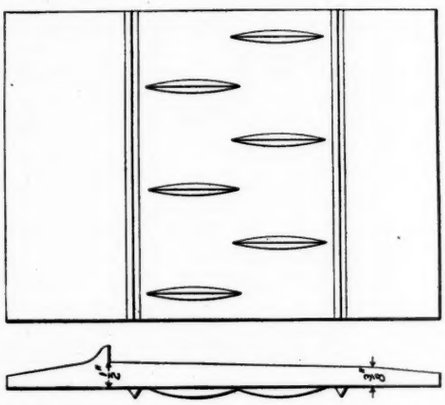
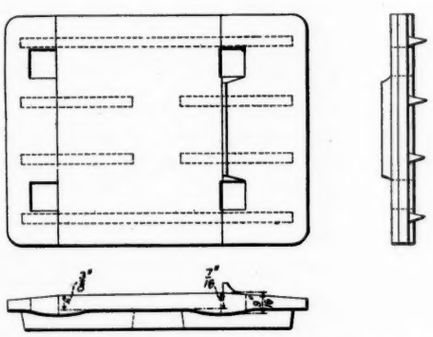
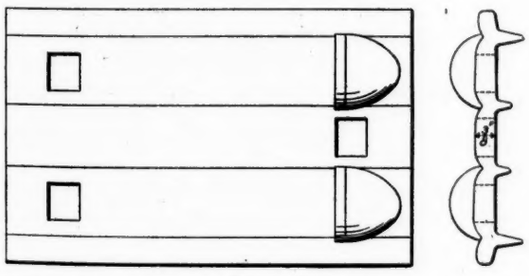


Plate with Transverse Ribs and Longitudinal Lugs, 6 in. x 8½ in.; Chicago, Burlington & Quincy.



Longitudinal Ribbed Reinforced Plate, 6 in. x 8 in.; Chicago, Milwaukee & St. Paul.



Wolhaupter Tie Plate, 5 in. x 8 in.; Elgin, Joliet & Eastern.

Samuel Rockwell, chief engineer Lake Shore, says that his tie plates are usually driven in from the side so that the rib entirely enters the wood and the bottom of the plate bears on the ties. This plate has a single, sharp flange, ⅞ in. deep, parallel to the fibres of the wood. The inner end of the flange is also sharpened, facilitating its insertion in the way he describes. G. C. Cleveland, assistant chief engineer Lake Shore, thinks the rail should be slightly canted so that the wheel will entirely cover the rail. In laying rail he tries to do this by adzing the ties. He says a wedge-shaped tie plate would do this.

J. A. Lahmer, principal assistant engineer Kansas City Southern, believes a cant of about 1 in 20 toward the center of the track with wheels coned to fit would be good, for even on the inside of curves there is a tendency on the part of rails to gradually cant outward. He doubts whether a tie plate alone would be effective as an anti-creeper, for he has seen ties split on account of the rail having been anchored to them on trestles. A. F. Rust, resident engineer on the same road, reports malleable iron plates as giving better satisfaction than steel plates. He does not believe a tie plate can be effective as an anti-creeper.

T. C. Burpee, engineer of maintenance Intercolonial of Canada, believes in canting the rail slightly and says his experience with tie plates as anti-creepers has been unfavorable. He tried some combination tie plates and rail braces of malleable iron, and found that they bent too easily.

A. S. Baldwin, chief engineer Illinois Central, reports good results with malleable iron plates and is of the opinion that canting the rails will cause excessive rail wear, because most wheels are worn to adjustment to uncanted rails.

M. S. Blaiklock, engineer maintenance of way Grand Trunk, believes good results follow if wheels were coned similar to British practice, and says that tie plates giving a slight cant are needed, for the rails on his road turn over. He believes that putting a shoulder on each side would help to make a tie plate a good anti-creeper.

F. J. Stimson, division engineer Grand Rapids & Indiana, prefers a plate with a rib instead of a flat bottomed plate, because he has found that it becomes more a part of the tie and as a consequence is less noisy and less destructive to the tie.

B. F. Beckman, superintendent Fort Smith & Western, says: "In my opinion, on tangent track, a slight cant might be of some advantage, though I am rather doubtful, as it seems to me that the rail should be vertical in all cases on tangent. On curves, however, I have noticed that frequently, where the tendency is to over-elevate the outside rail, thereby placing an abnormal weight on the inside rail, the inside rail becomes warped, with the joint remaining nearly normal and the center of the rail canting outward, this being caused by a vertical load on a badly canted rail, the joint being stiffer laterally than the rail alone. In such cases I think it would be highly advisable to use a wedge-shaped tie plate, bringing the inside rail vertical, and a slightly wedge-shaped tie plate canting the top of the outside rail slightly inward. A tie plate should not be used as an anti-creeper. The anchorage for an anti-creeper should come close to the center of the resisting force, which is the ballast in front of the tie, and therefore should come down close to the centre of the tie."

A. Swartz, division engineer Erie, uses tie plates on the sharper curves and also on tangents in places where the roadbed is soft and the track spreads very easily. R. C. Falconer, assistant engineer Erie, says that joint tie plates on bridges are not spiked through the slots in the angle bars; otherwise, creeping rails would tilt the joint ties. As to the use of a tie plate as an anti-creeper, he says: "It would seem that if such a tie plate could be produced it would be an ideal method of preventing rail creeping on account of the many points at which the rail is held and the corresponding smaller stress at each point."

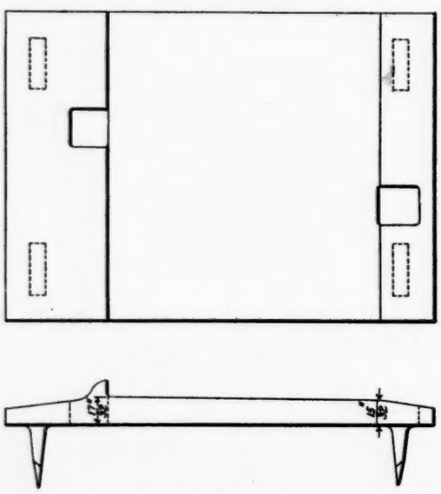
C. A. Paquette, assistant chief engineer Big Four, says: "We have used no malleable iron tie plates, but believe that we must come to the use of a malleable tie plate or add very materially to the thickness of the tie plate now in use, so as to overcome

corrosion. This is particularly true in view of the fact that we anticipate a life of something like 18 years from our creosoted ties." He believes the tie plate cannot have much virtue as an anti-creeper.

W. D. Williams, chief engineer Cincinnati Northern, favors a tie plate giving a cant of about 1 in 20, but as yet has used none but plates of uniform thickness.

W. L. Breckenridge, engineer maintenance of way Burlington, sent in a drawing for the standard tie plate on the Burlington showing a cant or inclination of ⅛-in. in base of rail. He reports using the Security combined tie plate and rail anchor.

Edward Laas, engineer maintenance of way Chicago, Milwaukee & St. Paul, reports satisfaction with malleable iron tie plates when made large enough and thick enough. He believes a slight taper would not be objectionable and would probably be beneficial. The plates he uses on curves project out much further on the outside of the rail than those used on tangents; the purpose for elongating the plates used on curves being to prevent the rail from canting outward. He is getting good results from this particular type of plate. The plate is slightly tapered. As to anti-creepers, he says: "In my opinion the tie plate should be considered as an integral part of the tie, and when once seated in the tie should not be subject to any displacement or movement by the rail. The wave action of the rail, if the plate is fastened

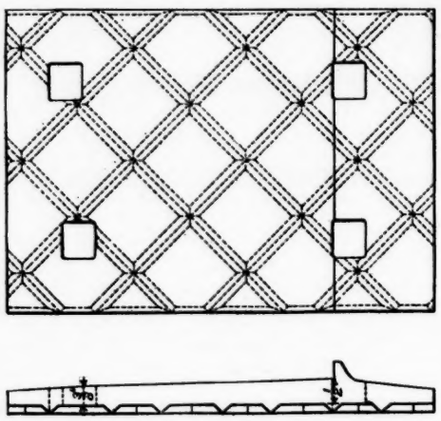


Goldie Tie Plate, 6 in. x 8½ in.; Great Northern.

to it, will work the plate up and down and back and forth on the tie and soon pulverize or grind the wood, so that it will be loose on the tie. This condition in my opinion would be objectionable. The rail expands and contracts daily, especially during the autumn months, when the days are warm and the nights cool. It is not an uncommon thing to find anti-creepers that were tight against the tie in the evening a quarter of an inch or more back in the morning, showing that the rail has contracted and worked backward during the cool period of the night. The heat of the day will move these creepers forward again up against the ties. This movement of the rail, which has been little considered by trackmen, would be very detrimental to tie plates used as anti-creepers. It might be possible that every plate being in the shape of an anti-creeper would hold the rail so firmly that no movement could take place, but this would make a strain on the tie plate that would be transmitted to the tie and would not benefit it."

C. W. Huntington, general superintendent Central of New Jersey, says: "While it is doubtless true that a new wheel will get a better bearing on a rail, which is canted to suit than one which is laid horizontally, the ordinary wheel soon comes to a good bearing on a rail laid in the ordinary way. There is a distinct advantage in laying the rails flat, as this must be done in passing through switches and crossings in order to work out satisfactory details. We are inclined to the opinion that the tie plates diminish somewhat the wave motion of the rail, and consequently the creeping. Without tie plates the rail cuts into the tie and has more freedom to move vertically and in the direction of traffic."

F. F. Busteed, general superintendent Canadian Pacific, says: "The only malleable iron tie plates that I know of were placed in the track around MacMillan on the first district east of Winnipeg. This was a special kind of a plate with lugs gripping the rail, the

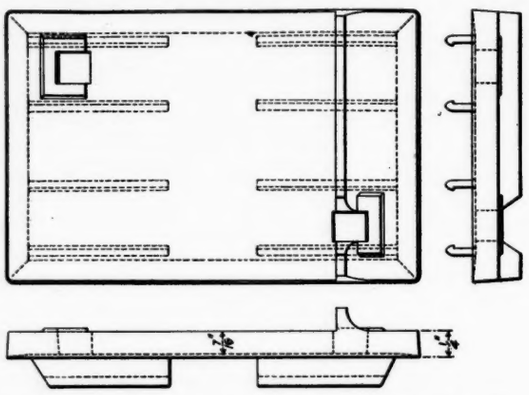


Sellers Tie Plate, 6 in. x 8½ in.; Canadian Pacific.

plate thus acting as a rail brace. I inspected this piece of track about two years ago and found that the plates were in good condition. The difficulty with them was that when a derailment occurred the derailed wheels would strike the plate acting as rail brace and force it so tight up to the rail that it was next to impossible to get the plate off."

J. G. Sullivan, assistant chief engineer Canadian Pacific, says: "We have recently decided to change the standard on account of the difficulty in shimming under the ribbed plate, and also on account of the danger of the deep ribs cutting through the protected timber where we may use creosote. In lieu of a new standard we are at present accepting Sellers tie plates." J. E. Schwitzer, assistant chief engineer Canadian Pacific, Western Lines, says: "I have had no experience in connection with canting rails so as to have complete contact with the wheels on account of the coning, and I am of the opinion that this is not called for unless all railways were to adopt it simultaneously and arrange for changing the wheels. I think that if the wheels were checked up the coning would be found to vary a great deal in the different wheels after they have been in service for a short time; besides being badly worn."

G. D. Brooke, division engineer maintenance of way Baltimore



Fish Hook Plate, 5¼ in. x 8⅛ in.; Kansas City Southern.

& Ohio, says: "Our plates are set on the ties. Countersinking reduces the effective depth of the tie at the rail bearing and forms a receptacle for moisture. In regaging track on curves and in adzing when laying new rail, the best trackmen adze the ties so as to give the rail a slight inward cant."

E. Stimson, chief engineer maintenance of way Baltimore, Ohio, says: "The tie plates are placed to proper gage and given

a permanent set, and not left to be driven home by the weight of the trains passing over them."

C. A. Morse, chief engineer Atchison, Topeka & Santa Fe, gives cost as his only objection to malleable iron plates. He says that two or three years ago the Santa Fe used a tie plate with a slight cant on top, but in the present plate this cant is omitted. Personally he is in favor of the cant in the tie plate. As to the combined tie plate and anti-creeper he says: "I think it is possible to make a tie plate effective as an anti-creeper. The ordinary tie plate with the cut spike, however, has exactly the opposite effect, there being less friction between the rail and the tie plate than between the rail and the surface of the tie." R. J. Arey, engineer grand division Atchison, Topeka & Santa Fe Coast Lines, says: "From experience which we have had with the standard tie plates now in use, I strongly favor the bevel on the plate, as before this style plate was used the cant was adzed in the tie to keep the rail from turning outward." J. E. McNeil, inspector track and roadway Atchison, Topeka & Santa Fe, says: "Personally I like a beveled plate, but owing to the use of Continuous and Weber joints on our line, without tie plates at the joints, our management decided that it would not be best to use beveled intermediate plates when not having the joints beveled to conform to the balance of the rail. For that reason the use of beveled plates has been discontinued on our line."

The extracts given above fairly represent the sum of the opinions expressed. Other engineers, not quoted, favor the canted rail as helping to prevent overturning. Several engineers, in speaking of tie plates as anti-creepers, suggested a shoulder on each side of the plate, fitting closely to the base of the rail so as to bind it as soon as the tie slewed perceptibly. Others said that the diminished friction between rail and plate, as compared with rail and wood, allowed more rail creeping.

THE INTRODUCTION OF ALL-STEEL CARS.

BY W. H. RADCLIFFE.

The all-steel express trains recently placed in operation on the Pennsylvania Railroad are encouraging to the public in that the time is hastened when all-steel cars for both Pullmans and day coaches will be a reality, but are somewhat discomforting for those who ride in the wooden cars of local trains run on the same tracks as the all-steel express trains, and for those in the wooden cars of trains made up partly of wooden cars and partly of all-steel cars. There is less assurance of safety to them than in the case of express trains composed either entirely or in part of wooden Pullmans.

That there is reason for discomfort is proved by the fact that collisions between trains composed of both steel cars and wooden cars result in the almost complete destruction of the wooden cars, with but little, if any, damage to the steel cars. In fact, the excellent showing of steel cars in collision is made possible by the wooden cars forming a part of the trains; the wooden cars being weaker than those of steel act as cushions, and by becoming crushed, modify the force that otherwise would be exerted on steel cars.

Although the same conditions exist in a more modified form in a train composed of wooden day coaches and the stronger wooden Pullman cars, and also between a train made up entirely of wooden Pullmans and a train made up entirely of wooden day coaches, the strengthening of the Pullmans by all-steel construction, without proportionally strengthening the day coaches, still further protects the passengers in the Pullmans at the expense of those in the day coaches.

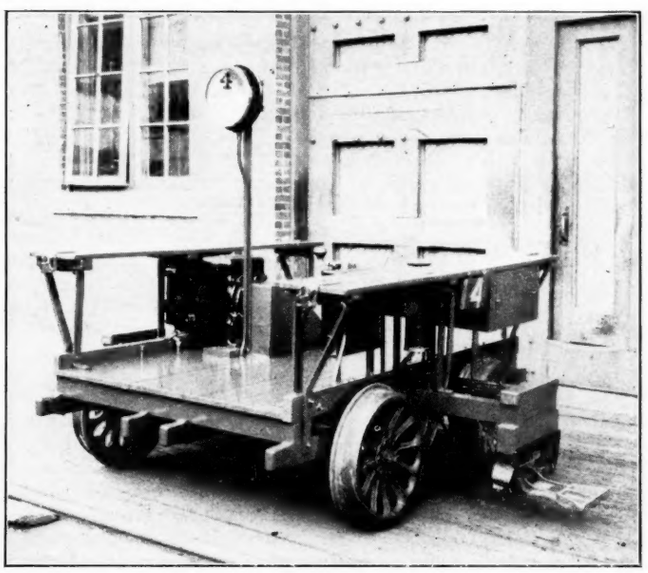
When both local and express trains become entirely composed of steel cars a collision will not mean the same immunity from death or injury that the occupants of steel cars have hitherto enjoyed, for it is probable that these cars, if of approximately the same strength, will in certain collisions be crushed or telescoped—at any rate they would certainly not carry off the honors which are now literally thrust upon them.

It is not the intention of this article to discourage the exclusive use of steel cars on passenger trains, but rather to urge that the period of transition from wooden to steel cars be made as brief as possible. The greatest good is that which benefits the largest number of people, and in no direction could all-steel car construction be better applied than on steam railways, where, as previously mentioned, Pullman passengers are made safe from collisions on account of the greater risk incurred by the occupants of day coaches. The all-steel cars also reduce the fire risk to a minimum, which so often adds to the horrors of a collision.

The decrease in our timber supply and the continued demand upon our forests make desirable, wherever practicable, the substitution of metal for wood. The great quantities of lumber employed in the building of cars is already a heavy drain on our forests, and it would be well if other railways followed the example of the Pennsylvania in adopting all-steel car construction, and used it not only for the Pullman cars but for the day coaches as well.

ELECTRIC MOTOR INSPECTION CAR.

The electric motor inspection, or emergency, car shown herewith was designed for use in case of trouble on the line of the electric zone of the Long Island Railroad, especially in connection with high tension lines which supply current to the third rail, when it is imperative that linemen reach the scene of the trouble without delay. A crew of from six to eight men, with all the necessary tools, etc., may be carried on this car at a rate of 30 miles an hour. The car has two third rail shoes, one on each side, so that it may be operated on any track and



Long Island Electric Motor Inspection Car.

in either direction. When out on the line this inspection car runs the same as a regular train, ringing all crossing bells and operating all crossing gates.

The car is propelled by a small pump motor—the design used on the regular car equipment—which drives one pair of wheels through a Morse silent chain, connecting the motor shaft to a sprocket keyed to the axle.

The braking system consists of four inside hung shoes and a system of levers by which they are operated through a foot lever. An air whistle is provided, the air being supplied when required by a hand pump, the handle of which is seen above the seat board near the controller.

Four markers, one at each corner, and the main headlight shown in the photograph are used, all being equipped with incandescent lamps.

The car has been patented by the Long Island company, this being for self-protection only.

General News Section.

The working hours in the locomotive shops of the Philadelphia & Reading at Reading, Pa., have been reduced from 40 hours a week to 32 hours, and in the car shops from 50 to 45.

The pension fund of the United States Steel Corporation, furnished partly by the corporation and partly by Andrew Carnegie, will go into effect January 1, next. The fund at the start will amount to $12,000,000. The minimum monthly pension will be $12, and the maximum $100.

Mrs. Jennie Edgar, a stockholder of the Illinois Central, has filed suit in court at Chicago against the directors of the road on account of the car repair frauds, declaring that the directors have neglected to perform their duties. Mrs. Edgar alleges that the total sum lost by the company in consequence of these frauds was $6,500,000.

The state of Kentucky has begun a suit in court to recover from the Illinois Central $511,719, alleged past due taxes. It is charged that during the past five years the reports made by the road to the state, on which were based the valuation of the franchises, were incorrect and fraudulent. A similar suit for $640,000 has been begun against the Louisville & Nashville.

The governor of Indiana has issued a call for a conference, on December 13, when he will hear the objections of the interurban railways, if any there be, to the recommendations which he proposes to submit to the legislature in January, relative to the operation of interurban roads; that is to say, to the prevention of collisions. The governor proposes to make this conference open to the public, a decision to which the railway officers, it is said, have strongly objected.

As heretofore noted, some sleeping cars from the Southern states, not all-steel, will be run, temporarily, through the New York tunnels of the Pennsylvania Railroad. For the management of these cars the road has issued an order to the effect that they will be accepted provided they do not carry gas, gasoline or oil as illuminants. Fires in coal or charcoal ranges must be extinguished before entering the tunnels under the Hudson river. All except private cars must have vestibule and trap doors, so arranged that the vestibule side door may be opened over the top of the trap doors.

The Interstate Commerce Commission, which, under the law of March 4, 1909, has authority to prescribe regulations for the interstate transportation of explosives, and which has issued such regulations in accordance with the recommendation of the American Railway Association, proposes to take up the question of transportation of inflammable articles and acids, and a hearing has been appointed for January 13 in Washington. The announcement of the hearing refers to the regulations of the American Railway Association concerning inflammable articles and acids, and sets forth that complaints have been received charging that these regulations are unreasonable; and the action of the commission seems to be based on the view that the question of safety in this connection is of such general importance that the commission ought to institute an investigation. As the action of the government has been beneficial in the matter of explosives, there would seem to be no reason why good results should not follow from corresponding action in the present case.

The Federal Grand Jury at Savannah, Ga., has returned indictments against the Merchants & Miners' Transportation Company, the Seaboard Air Line Railway, the Atlantic Coast Line, Harvey C. Miller and Morris F. Miller. The offences charged are the carriage of grain from Philadelphia to Jacksonville at 10 cents per 100 lb., when the rate filed was 15 cents. The transportation companies are indicted for giving this concession, and the members of the firm of L. F. Miller & Sons, for receiving it. Harvey C. Miller offered himself to the United States Attorney at Savannah as a witness, but the offer was declined. Mr. Miller was arrested some days ago pending action by the grand jury, and placed under ten thousand dollars bond. On the present indictment the court fixed the bond at $50,000. The facts in this matter were brought out by Attorney John H. Marble of the Interstate Commerce Commission at a hearing held in Philadelphia last July before Commissioner Clements. The shipments referred to were made about two years ago. They were sent from Philadelphia to Savannah by steamship and thence by railway.

Poetry and Truth.

It is not an uncommon thing for railways to receive letters from patrons criticising shortcomings in their service, but rather unusual to receive letters commending their service. The Chicago & North Western was gratified recently to receive the following letter from a prominent citizen of Chicago:

"We are having a most restful and enjoyable time in the beautiful train. As I have sat out most of the transit of Iowa on the observation platform, I have been deeply impressed with what your road is doing for this state. The evident untellable economic value of the road to the commonwealth I do not here dwell upon. I am thinking rather of the tremendous value of its educational influence, esthetically and ethically. The logic of its long, straight, shining lines; the poetry of its perfect curves; the prudence of its block system signals; the trimness of the right of way; the neat effectiveness of its ballasting; its handsome stations and their surroundings; its unwinking eyes of light all night; the courtesy and skill and 'well-dressedness' of the officials and employees, etc., must be exercising an enormous educational influence upon all who come into business or observational contact with them, making these farming and village folk, though they may never realize the fact, every way better people in all relations of life. It is a big educational affair."

Union Pacific Educational Bureau.

An article describing the Educational Bureau of Information of the Union Pacific was published in the *Railway Age Gazette* of June 10, last. The Bureau since then has enjoyed a substantial growth. The total enrolment on December 5, exclusive of the Japanese, who are mainly track laborers, had been 1,703, of which number 327 had left the service of the company. Of the 1,376 still in service, 285 are delinquent, that is, have not shown sufficient interest in the work to warrant the Bureau continuing to carry them. This is but 20.7 per cent. of the total number enrolled and in service, leaving 1,091 student employees in good standing, a percentage of 79.3, which seems very creditable. About 130 Japanese track laborers also are enrolled and in the service. The Bureau is correcting an average of about 600 lessons a month, and is sending out about 12 student helpers a month from the station training school. Of the total number of students sent out from the training school since its establishment, 18 per cent. have been promoted, and about 10 per cent. more are ready for promotion and awaiting positions. Only 5 per cent. of those who have received instruction in the training school have left the service.

The Bureau on December 1, issued a circular announcing the courses of instruction offered by it to employees of the road. The courses now given include: block signaling, interlocking, electrical, electric light and power, telegraph and telephone, station work, railway accounting, railway mechanical engineering, gas engine, McKeen motor car running, locomotive, air brake, mechanical drawing, machine designing, sheet metal, pattern drafting, boiler-shop practice, tool tracing, pipe fitting, plumbing, track. The following courses are in preparation: railway operation, freight and passenger traffic, analysis of statistics, car building and car repairing, refrigeration, railway civil engineering, surveying and mapping, plain and reinforced concrete.

Legislation on Industrial Education.

The National Society for the Promotion of Industrial Edution, with headquarters in New York, has recently issued Bulletin No. 12, entitled Legislation upon Industrial Education in the United States. The book is divided into five parts, the first of which is a reprint, with a few slight changes, of the first section of a pamphlet issued in 1909 by the American Association for Labor Legislation, prepared by Dr. Edward C. Elliott, of the University of Wisconsin. This part of the book gives a general summary of the legislation relative to industrial education in our public elementary and secondary schools. The remainder of the book was prepared especially for the National Society by C. A. Prosser, deputy commissioner of education for the state of Massachusetts. After proposing a more definite nomenclature for the subject, Mr. Prosser has traced the trend of legislation, giving an analysis of the legis-

lation in Massachusetts, New York, Connecticut, Wisconsin and New Jersey. Mr. Prosser has brought to this work the advantage of a legal training, many years of practical school experience and an intimate professional knowledge of the field of industrial education, and his work has been done with a high degree of thoroughness, clearness and insight.

Railway Exhibits at the Chicago Land Show.

Western railways furnished some of the most elaborate and instructive exhibits at the United States Land & Irrigation Exposition, held at the Coliseum, Chicago, November 19-December 4.

The Atchison, Topeka & Santa Fe brought 14 Navajo and Hopi Indians, who entertained the visitors by weaving Navajo blankets, making pottery and baskets, and singing and dancing. Their booth was a replica of an adobe mission building in New Mexico, a type of architecture familiar to Santa Fe travelers. The Harriman Lines exhibit filled the entire Coliseum annex, and in addition to a booth for the products of each of the important states reached by the lines of the system, a lecture room seating 500 people was maintained, in which lectures illustrated by moving pictures were given every day of the exposition.

The Rock Island lines showed a model and gave illustrations of scientific methods of crop rotation. The Minnesota State College of Agriculture was in charge of a portion of this company's exhibits, and agricultural college professors from 13 states lectured in the big lecture room in the balcony.

Other roads that furnished lecturers were the Frisco lines, and the Great Northern.

The Missouri-Pacific-Iron Mountain System had a large exhibit of the products of Texas and the adjoining states, and the St. Louis Southwestern featured 23 forage crops from Texas and Arkansas.

Other railway exhibitors included the Kansas City, Mexico & Orient, the Missouri, Kansas & Texas, the Denver & Rio Grande, the Kansas City Southern, the San Pedro, Los Angeles & Salt Lake, the Jonesboro, Lake City & Eastern and the Prescott & Northwestern.

The Grangers.

With railway men of 30 years ago this term was one of the most familiar. If anyone thinks that the grangers are all dead, let him glance at the following summary of resolutions adopted by the National Grange convention at Atlantic City, N. J., last week. "* * * Giving the Interstate Commerce Commission power to nullify freight and passenger rates proved to be too high; radical changes in the Payne-Aldrich tariff bill; physical valuation of railway trunk lines; federal aid for road improvement; the parcels post; conservation of natural resources; a national income tax; direct election of United States Senators; the speedy construction of a ship canal connecting the Mississippi river with the Great Lakes and the Atlantic ocean; canal lines and the dredging of all great arteries of commerce to cheapen marketing of produce, and federal aid to promote the sale of farm products in foreign lands."

Discipline in Brooklyn.

The Brooklyn Rapid Transit Company's recent announcement of an advance in wages has already been noticed. The officers of the company disclaim any credit for either generosity or charity in this connection. They say that no other traction company maintains so complete and effective management of its men. Their scheme has produced such good results that it is now being adopted by street railway companies in other cities. It is based on the idea that better service is obtained by rewarding efficiency than by punishing for delinquency.

A complete record of every employee is kept on file. More than 8,000 large cards, indexed according to the employee's badge number, are so arranged that it is only an instant's work to look up any man's record. There is a debit and credit column on each card. On one side there are charged demerits for any violation of rules, while on the other are given credits for continuity of service.

The demerits are automatic. Under the old system there were nine superintendents in charge of motormen and conductors, and these men punished infractions of discipline. The weakness of this plan lay in the different nature of the superintendents, so that it depended on the superior with whom an employee came into contact whether his offense brought punishment or not. Now every violation of rules carries with it a certain number of demerits. There are a great number of such violations possible, and it is rare that either motormen or conductors go long without incurring demerits. On the other hand, enough credits are awarded at the conclusion of six months' service to extinguish a normal debit of demerits and make it possible for a reasonably careful and efficient employee to benefit by an advance in wages.

When a man gets forty demerits he is called into headquarters and given some friendly advice. When he gets eighty he is called in for a hearing, and if unable to disprove charges is dismissed from the service. Most dismissals result from the use of intoxicants.

The company keeps 200 inspectors out on the line to check up the behavior of employees. In addition to these, it has plain-clothes men, who ride about to detect men guilty of stealing fares, trading in transfers or abusing passengers. This espionage is not popular, but it seems to be the only way in which the company can protect its cash.

As a result of the reward system more than 70 per cent. of the employees to-day are "old men" in the sense that they have been with the company more than one year. One motorman has been continuously employed since 1873 and many others have long terms to their credit. They will receive pensions when they retire.

Another effect of the system is the strike insurance which it furnishes. There is no union among the employees and organizers have been unable to interest the men in one. They say they have no grievance and get more individually than they would get in a body.—*Wall Street Journal.*

Efficiency of Labor.

Railway men are generally agreed that the efficiency of labor has decreased ever since the higher wage scales went into effect. "We have found by bitter experience," says an official, "that the higher the wages the lower the efficiency. As soon as a man's pay is raised he seems to consider himself more independently fixed and consequently able to let down a bit on either the quality or quantity of this work."

Another operating man says that labor is about 75 per cent. as efficient now as it was during the hard times of 1907 and 1908. "We notice this in the greater average length of time required in track work and in repairing, comparing the time consumed on a job now with the time required for similar work during times when the men were not so sure of steady employment and worked a little harder to keep themselves on the payroll."—*Wall Street Journal.*

The Storm at Key West.

W. J. Krome, chief constructing engineer of the Florida East Coast, says in regard to the effects of the severe storm in November on the Key West extension:

"The extension work north of Knight's Key was not severely damaged and the equipment was practically uninjured. Several of the temporary trestles were partly destroyed by floating debris, and the necessity of repairing these prevented the operation of regular trains for about a week. At Boca Chica one pump barge was destroyed and the steamer Virginia drifted into the bridge and was a total wreck. The concrete arch work suffered no damage. From Key West to Boca Chica the loss was very heavy. The extreme height of the water and the fact that the wind came from what was considered the least exposed side of the road-bed, caused the washing out of a long section of track and embankment. The loss at the Key West end of the line was much heavier than in 1909, and was the greatest damage that has been incurred. With full protection, such as would have been completed within a few months, it is probable that trains could have been operated from the terminal to Trumbo Island without delay. No lives were lost at any point along the extension work."

Careless Letters.

Many people send letters addressed merely to the "—— Railroad Company," which causes delay in referring the matter to the particular department. An official receiving a letter not con-

cerning his department should promptly send it to the department it concerns, without further comment. A letter of transmittal is not necessary. Here are a few samples of letters addressed to a railway company at a branch office street number:

1.—Would like to sell you stone for your new abutment at.... 2.—As you are double-tracking here, I suggest changing the culvert for my land to new location for our mutual benefit. 3.—We think of moving our hardware factory from New England. 4.—Please quote your freight rates to Nome, Alaska. 5.—Would like your company to try our new grated ginger. 6.—Are the coupon bonds quoted below exchangeable for registered 7.—What is the fare to Salinas, Mexico 8.—Your company and my father jointly got a decision in their favor in regard to the water rights on the property. Can you furnish me with a copy or reference to the case?—*Erie Railroad Employees' Magazine.*

Numbers on Switch Targets.

The switch target which appears in the accompanying illustration is one in the yard of the Atchison, Topeka & Santa Fe, at Wellington, Kan., and is shown for the purpose of illustrating the practice of the Atchison, in cases like this, in putting the numbers on targets. The switch admitting to each ladder track bears the number of that track. The figures, about 4 in. high, are painted in white on the red background of the target. The disks of these targets are about 10 in. in diameter.

Numbers on Switch Targets.

In the view here shown the back side of the target faces the observer. On the front side the figure is placed in the center. The convenience of showing numbers on switches in this way was first made apparent by experimental numbering with chalk, but chalk numbers easily became erased and so the systematic numbering was substituted.

"Labor Unions, P. I. Bureaus, Etc."

To the Editor of the Railway Age Gazette:

I have your bill for another year's subscription. We sold our railway some months ago and have ever since been trying to get rid of it. After I succeed in getting relief, I don't want to see a railway or any railway literature, so you may discontinue my subscription. Labor unions, legislatures, railway commissions, courts, personal injury bureaus, etc., have made my life miserable for the last few years and I want to get out of hearing of a railway whistle; and as far away as possible.

I was an assistant engineer on the ——— away back in 1868, and was engaged on construction of the line between K. and C. At that time I made my first subscription to the *Railroad Gazette,* then published in Chicago; and I have been a subscriber almost continuously ever since. I regret to discontinue; but, for the reasons given above, and as railway methods have changed so greatly, I am going to try to dissociate myself and take a rest. * * *

Protected Against Himself.

In the chorus of good advice of which the railways at present are the beneficiaries, there is something obviously sincere in the following communication to a contemporary by a "Stockholder." It is at least luminous as regards the attitude of this class towards the people who control their properties:

"I happen to be a stockholder in several railways, and it is absolutely unnecessary to mail their very voluminous and expensive annual reports to every stockholder. They are never read, and go into the waste paper basket. They need only to advertise that reports will be sent when asked for."

Some of the railways annual reports cost net about 50 cents, and the postage is a few cents more. Such reports will be correctly summarized and thoroughly analyzed in the columns of such a newspaper as this. This stockholder, therefore, who seems hardly intelligent enough to read the *Wall Street Journal,* is willing to sacrifice the most valuable protection the law has ever devised for his benefit, for a saving which might amount to a dollar or two for each stockholder over a long period of years if his own officials, protected by secrecy, should not make ducks and drakes of his property in the meantime.

This kind of stockholder, moreover, is in the majority, in numbers, at least. It need hardly be said that the majority control of the railway protects itself effectually by knowing all about the property. The kind of stockholder we quote, however, has some vague idea that statutes can be passed to keep directors honest, and that failing this manifest impossibility, the newspapers have nothing else to do but to protect him where he ought to look out for himself. He does not know what his rights are, even as a minority stockholder. He is the despair of popular and democratic government. He throws his annual report in the waste paper basket, and we may be very sure that he never really reads it in any other form.

Over and above his recognized inalienable rights, the minority stockholder has constitutional rights and indestructible equities which the strongest majority combination in the country dare not defy. No one can protect these equities but himself. The newspapers at best can only secure him that publicity which he is too stupid to appreciate. Legislation can give him the means to redress his wrongs. The rest lies with himself.

It is incumbent upon every stockholder in every corporation in the United States (and elsewhere, for that matter) to read and understand the reports of his company, to have a fair working knowledge of his legal rights, to attend the meetings, and above all to subject the officers in charge of his interests to constant questioning, backed by the power of the law, if necessary. No majority control can stand up against a large number of intelligent stockholders all asking pertinent questions.—Editorial in the *Wall Street Journal.*

New York Subway Proposals.

W. G. McAdoo, president of the Hudson & Manhattan, on Saturday last, notified the New York State Public Service Commission, first district, that the proposal recently made by this company to operate the new subways which are to be built by New York City, will be withdrawn unless the commission takes reasonably prompt action. He suggests that the principal questions concerning this matter which are to be decided by the commission ought to be settled by December 15.

On the Monday following, the Interborough Rapid Transit Company presented a proposition more extensive than that of the Hudson & Manhattan. The Interborough lays out a plan which will cost 128 millions, and offers to itself furnish 75 millions of this money, leaving 53 millions to be furnished by the city. The Interborough would also expect to improve its elevated lines, provide equipment and make other expenditures to the extent of 39 millions, making 114 millions in all. The proposition is to build from the present Interborough line at Forty-second street and Seventh avenue southward through Seventh avenue (past the Pennsylvania station) to the southern end of the city, with

a branch from Liberty street across the East river; to build from the present subway at Forty-second street and Park avenue northward through Lexington avenue to the Harlem river, and thence by elevated lines northeastward to Pelham Bay park and northward through Jerome avenue to Woodlawn; subway extension in Brooklyn through Flatbush avenue and Eastern Parkway; extensions of the Fourth avenue subway in Brooklyn to Fort Hamilton and by an elevated line) to Coney Island; and the construction of the Lafayette avenue subway in Brooklyn to Broadway. The proposed lines will aggregate a length of over 35 miles, which is greater by 10 miles than the total length of the present subway lines. As in the other propositions made by the Interborough recently, the third-tracking of the elevated lines in Manhattan is a part of the plan, and the cost of this work is included in the 39 millions mentioned above. The Interborough controls the Steinway tunnel under the East river, and proposes to include that line in the system. The sum of $1,500,000 will be needed to put this tunnel in condition for operation, and that would have to be provided by the city. The Interborough proposes to modify the leases under which it is now operating the existing lines so that the city shall become owner of the entire system, at one time. The fare throughout the system is to be five cents; and to provide against a possible inability to pay interest from traffic receipts, elaborate stipulations are made concerning the apportionment of the burden between the operating company and the city.

The Latest Refinement.

"It is not now popular nor deemed desirable to use the word 'wreck' in speaking of a railway accident. It is proposed to refer to a wreck as a derailment, if conditions will permit, and if very serious to designate it as an accident, studiously avoiding the shorter and uglier word. This idea is already being carried out to such an extent that one hears in place of the old familiar 'wrecker' only such colorless and innocent terms as 'derrick' or tool car.' It is the 'crane crew' that is sent out on the road to pick up damaged cars and clear the track."—*New York Commercial.*

And to think of the barbarous times, in days gone by, when we heedlessly spoke of "wild" trains—trains liable at any moment to become so unruly as to cause wrecks from innate deviltry! And how fortunate that today we know enough to say "stop signal," no longer scaring away passengers with frequent references to "DANGER" indications. English is not a dead language.

German Praise for McPherson's "Transportation in Europe."

The readers of the *Railway Age Gazette* who have followed the series of articles in this paper by Logan G. McPherson on transportation in European countries will be interested to know of the very high praise that has been given to his recent book entitled, "Transportation in Europe," by Dr. von der Leyen, chief councilor of the German railways, who contributed a review of the book to a recent number of the *Archiv fur Eisenbahnwesen.* Dr. von der Leyen says in part:

"It is truly astonishing that this American, who until this visit had been quite unacquainted with European conditions of traffic and who, for example, had only a partial knowledge of the German language, succeeded within the short space of a few months, in gathering such rich material and in working it over with such skill. Moreover, he has aimed at a thoroughly objective presentation and his judgment is only seldom influenced by his own views, preconceptions which he held particularly concerning railways of his own country. In so far as the railway conditions in the United States are different from those of Europe, Mr. McPherson by no means always gives the advantage to those of America. Quite the contrary. He frequently acknowledges that many of our ways are better, and where his comparisons happen to favor the United States, he takes pains to explain the differences by pointing out the unfavorable actual conditions here and makes these clear to his readers. In this respect his work differs, much to his own advantage, from that of many other American writers, who admire America blindly and shrug their shoulders in pity over antiquated Europe. As Mr. McPherson fully understands the policy of state railways in Europe, he expresses himself throughout in regard to it with appreciation; for instance, explaining how the relation of railways to waterways developed in Germany. Nevertheless, he considers the system of government railways as undesirable in America and would also disapprove if at any time the government of the United States should decide to expend indefinite amounts of public funds for the improvement of existing waterways and the construction of new ones. He considers it scarcely possible, and not at all necessary, that the policy of interior waterways as adopted in that country for several decades, should undergo any essential change.

"A large part of the contents of the book is not new to German railway men. Nevertheless, there is much of interest in reading this short and clear representation from the pen of a well-informed foreigner. The book is chiefly intended, however, for the author's countrymen, and it should be warmly welcomed if it will aid in giving Americans a right understanding of European traffic conditions and in dispelling the various prejudices which are still prevalent among them."

Nine Derails.

In the roundhouse of the Idaho & Washington Northern at Spirit Lake, Idaho, each of the nine tracks leading from the house to the turntable has in it a derail, fixed about 20 ft. from the table. Each derail is interlocked with the turntable lock, so that a movement cannot be made over it except when the table is in proper position for that track.

Texas General Managers.

At the annual meeting held December 1, at Fort Worth, Tex., J. H. Hill, manager of the Galveston, Houston & Henderson, was elected president of the General Managers' Association of Texas, succeeding Charles Hamilton, vice-president and general manager of the Texas Central.

American Society of Civil Engineers.

At a meeting held December 7, 1910, two papers were presented for discussion, as follows: "Bond-Friction-Resistance in Reinforced Concrete," by William Fry Scott, and "Hydrography as an Aid to the Successful Operation of an Irrigation System," by J. C. Stevens. Mr. Scott's paper was printed in *Proceedings* for October, 1910, and Mr. Stevens' paper in the November *Proceedings.*

New York Railroad Club.

The fourth annual Christmas entertainment and social reunion of this club will be held at the building of the United Engineering Societies, 29 West Thirty-ninth street, New York, on Friday evening, December 16, after a brief business session. The programme will include a vaudeville entertainment and supper.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Scranton, Pa.; next meeting, June 22, 1911; Niagara Falls, N. Y.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—C. M. Burt, Boston, Mass.; next meeting, St. Paul, Minn., 1911.

AMERICAN ASSOCIATION OF LOCAL FREIGHT AGENTS' ASSOCIATION.—G. W. Dennison, Pennsylvania Co., Toledo, Ohio.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew building, Cincinnati, Ohio.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 24 Park Place, New York.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago; Sept. 17-19, 1911; St. Louis, Mo.

AMERICAN RAILWAY ENGINEERING AND MAINTENANCE OF WAY ASSOCIATION.—E. H. Fritch, Monadnock building, Chicago; March 21-23, 1911, Chicago.

AMERICAN RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; May 6, 1911; Detroit, Mich.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago; June 14-16, 1911, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—O. T. Harroun, Bloomington, Ill.

AMERICAN ROADBUILDERS' ASSOCIATION.—Dec. 6-9; Indianapolis, Ind.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wednesdays, except July and August; annual, Jan. 18-19, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—D. J. Haner, 13 Park Row, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 29th St., New York.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; April 26, 1911; New Orleans, La.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; May, 1911; Montreal, Can.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—G. B. Colegrove, I. C. R.R., Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; June 19, 1911; Boston, Mass.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 24 Park Place, New York; Dec. 13-14, 1910, Chicago; June 20-21, 1911, Cape May City, N. J.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 1st Tuesday in month, except June, July and Aug.; Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays; Montreal, annual, last week January.

CAR FOREMAN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Friday in January, March, May, Sept. and Nov.; Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—D. F. Jurgensen, 116 Winter St., St. Paul; 2d Monday, except June, July and Aug.; St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday; annual, Jan. 17, 1911; Pittsburgh.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Rich., Fred. & Pot R.R., Richmond, Va.; 20th annual, June 21, 1911; St. Paul, Minn.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—H. D. Judson, 209 East Adams St., Chicago; Wednesday preceding 3d Thursday; Chicago.

INDIANAPOLIS RAILWAY AND MECHANICAL CLUB.—B. S. Downey, C., H. & D., Indianapolis, Ind.

INTERNATIONAL MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York; next convention, Omaha, Neb.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—D. B. Sebastian, La Salle St. Station, Chicago; May 15-18, 1911; Chattanooga, Tenn.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.

INTERNATIONAL RAILWAY MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.

IOWA RAILWAY CLUB.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August; Des Moines.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago; June 19-21, 1911, Atlantic City, N. J.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass.

NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept.; Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August; New York.

NORTH-WEST RAILWAY CLUB.—T. W. Flannagan, Soo Line, Minn.; 1st Tues. after 2d Mon., except June, July, August; alternately at St. Paul and Minneapolis, Minn.

NORTHERN RAILWAY CLUB.—C. L. Kennedy, C., M. & St. P.; 4th Saturday; Duluth, Minn.

OMAHA RAILWAY CLUB.—A. H. Christiansen, Barker Blk.; second Wed.

RAILWAY CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City; 3d Friday in month; Kansas City.

RAILWAY CLUB OF PITTSBURGH.—C. W. Alleman, P. & L. E., Pittsburgh, Pa.; 4th Friday in month, except June, July and August; Pittsburgh.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, 12 North Linden St., Bethlehem, Pa.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio; annual, May, 1911.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—Walter E. Emery, P. & P. U. Ry., Peoria, Ill.; Oct., 1911; St. Louis.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug.; St. Louis.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Prudential bldg., Atlanta, Ga.; 3d Thurs.; Jan., April, August and Nov.; Atlanta.

TOLEDO TRANSPORTATION CLUB.—L. G. Macomber, Woolson Spice Co., Toledo; 1st Sat.; annual, May 6, 1911; Toledo.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; 1st Sat. after 1st Wed.; annual, Dec. 13, 1910; Buffalo, N. Y.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August; New York.

TRAFFIC CLUB OF PITTSBURGH.—T. J. Walters, Oliver building, Pittsburgh, Pa.; meetings monthly; Pittsburgh.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 20, 1911; Baltimore, Md.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August; Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, First National Bank bldg., Chicago; annual, Jan. 17-19, 1911; Chicago.

Traffic News.

In the federal court at Louisville, Ky., December 3, the Louisville, Henderson & St. Louis was fined $3,000 for having given rebates to the American Tobacco Company and others. L. J. Irwin, president of the road, was exonerated. The prosecution of the American Tobacco Company for receiving rebates was continued to the next term of the court.

The railways of Indiana, making their computations on the same basis as that adopted in Illinois after an investigation and order by the State Railroad Commission, have made increases of seven cents a ton in the rates for the transportation of coal on the principal lines of the state, excepting, however, the rates to Indianapolis and other points near that city.

In the month of October, 12 steamers sailed from New York direct for Argentina, carrying full cargoes of manufactured goods. In November the steamer "Texan" sailed from New York for Montevideo flying the American flag, the first steamer to do this within the memory of "the oldest inhabitant." The "Texan" is a vessel of 15,000 tons and made the trip from New York to Montevideo in 20 days.

The Chicago, Peoria & St. Louis has filed with the Interstate Commerce Commission a tariff providing for the payment by it of switching rates to the Manufacturers' Railway of St. Louis on traffic originating at or destined to industries located on the Manufacturers' Railway's tracks. The Chicago, Peoria & St. Louis is one of the roads which withdrew these switching allowances a few months ago.

Officers of the Illinois lines are considering the question of bringing suit to test the constitutionality of the Illinois 2-cent fare law. Statistics are being compiled and after what they show has been ascertained it will be decided whether litigation will be resorted to. The Western roads have succeeded in getting favorable decisions in the United States Circuit Courts in every case which they have brought to test the constitutionality of the 2-cent fare laws, including the cases in Arkansas, Missouri, Minnesota, South Dakota and Oklahoma.

The Way-Bill, the official paper of the Traffic Club of Chicago, states that the club on November 30 had a membership of 743, and gives the following interesting list of the business connections of the members:

	Resident.	Non-resident.
Railways	222	96
Steamship companies	18	6
Fast freight lines	38	7
Express companies	10	1
Industrials	244	56
Railroad associations	16	6
Industrial associations	5	8
Commissions	1	3
Publications	3	1
Honorary	1	1
Total	558	185

Army and Navy List, 31.

Chicago Transportation Association.

The annual meeting of the Chicago Transportation Association was held at the Wellington Hotel, Chicago, on December 5, and the following officers were elected for the ensuing year: President, J. A. Angel (St. Louis Southwestern); vice-president, Frank T. Scanlan (Goodrich Transit Company); recording secretary, L. H. Mann (Southern Railway); financial secretary, G. H. Brown (Grand Trunk); treasurer, J. W. Betts (New York Central); directors, Ira Bramwell, John Bickel and John A. Boak.

Reductions in Pullman Rates.

G. S. Fernald, general attorney of the Pullman Company, on December 1 submitted to Commissioners Lane and Clark of the Interstate Commerce Commission at Chicago a proposition for a general reduction of about 20 per cent. in the rates for upper berths in sleeping cars and for some reductions in the rates for long-distance journeys in lower berths. Commissioners Lane and Clark were in Chicago to conduct a rehearing of the case brought by George S. Loftus against the Pullman Company, in which the commission ordered reductions in rates between Chicago and St. Paul and between other points in the Northwest. The reductions offered by the Pullman Company of the specific

rates involved in the case are somewhat less than those ordered by the commission, but they include reductions not only of the rates involved in these cases but in rates throughout the country. The following are examples of the reductions proposed:

From Chicago to—	Present rate, Upper and lower.	Proposed rate— Upper.	Proposed rate— Lower.
Boston	$ 5.50	$ 4.40	$ 5.50
New York	5.00	4.00	5.00
Pittsburg	2.00	2.00	2.50
St. Paul	2.00	1.60	2.00
St. Louis	2.00	1.60	2.00
San Francisco	14.00	10.40	13.00
Seattle	14.00	10.40	13.00
Denver	6.00	4.80	6.00
Washington	4.50	3.60	4.50
New Orleans	5.50	4.40	5.50
Galveston	8.00	5.60	7.00
San Antonio	8.00	6.00	7.50
St. Augustine	7.00	4.40	6.75
Atlanta	4.50	3.60	4.50
Kansas City	2.50	2.00	2.50

It will be noted that in all cases the price for the upper berth is 20 per cent. less than for the lower berth.

Pullman Car Rates and Conditions.

The *Wall Street Journal,* discussing the recent announcement of the Pullman Company that it would be willing to make a reduction in rates for the use of upper berths—a subject which is still under investigation by the Interstate Commerce Commission—says that the proposal of the company will provide for a difference of about ten per cent. in favor of the upper berths. This is much less than the differences named in the order which was issued by the commission a year ago.

Basing its statement apparently in part on facts brought out by the commission, and in part by statements of Pullman officers, the *Wall Street Journal* says:

Following a general revision of its eastern schedule in 1908, the company immediately began a revision of all its western rates, the last of which changes took effect last January. The new revision, like the previous one, makes many reductions and some advances, with a net reduction of small dimensions. It became apparent to the Pullman people at the last rate hearing that public demand for differentials was irresistible. Eighty per cent. of the berths occupied in Pullman cars in this country during the past year have been lower berths. [Assuming all cars to have 24 berths, the average number of upper berths occupied would, therefore, be only three]. The earnings of Pullman cars have regularly increased in spite of business depressions, and at the present time there are fewer empty berths than ever before, because the supply of lower berths is less adequate than ever before. The receipts from cars for the fiscal year ending July 31, 1910, amounted to $35,365,321. The company's claim that potential competition was an important risk of the business has not been justified by the facts. No contract has been lost, while one new road, the Florida East Coast, has been taken on. No prominent road is proposing to operate its own sleeping cars. The average life of a sleeping car is twenty years; then it must become a passenger coach, a circus car or junk. During the past three years the number of cars owned by the company was 5,300 and the average number constantly in service was 5,000, of which 600 were tourist cars. The company has more than 100 compartment cars. Some of these are run on the 20th Century Limited express trains of the New York Central. This train last week left Chicago in two sections on five consecutive days. Two or three dozen Pullman cars are destroyed in wrecks each year. The Pullman officers say that few passengers would consider a differential of less than 50 cents an inducement to take an upper berth, if a lower berth were available. Pullman officers think a car ought to earn $7,000 a year. Between Chicago and Minneapolis, the following results per car per annum were shown:

Gross, $7,000; expenses, repairs, maintenance and 5 per cent. depreciation, $5,000; net, $2,000; percentage of net on $17,500 capital investment, 11.2 per cent. The averages for the country would be much less than this.

Contracts with 125 systems vary in form, but Pullman takes few chances under any contract. The average term is 15 to 20 years, with a 6-months' clause permitting termination at any time. Usually a road is charged $6,000 a year and if the car earns less a mileage of one cent per mile is assessed, but the railway has the option of making good the deficit on a cash basis. Mileage this year aggregated only $500,000, whereas a few years ago it exceeded $2,000,000. According to the company's system of bookkeeping, the mileage is included in repairs and maintenances.

Figures covering the operation of 38 cars between Chicago and Minneapolis, as presented at the last hearing, showed net earnings, $69,569, or 18.21 per cent. The St. Paul road's figures (on cars owned by the road) showed 9½ per cent. for the same period, the average cost of the cars being $19,609. During the year the St. Paul's sleeping cars are in service an average of 75 or 80 per cent. A small company could not do business by itself on the Pullman basis because most of the profit consists in the constant employment of practically all the cars by shifting the excess at one point immediately to places where demand exceeds supply, as it always does somewhere or other the whole year through.

Pullman records show that "car cleaning and washing" amounts to nearly $1,500,000 annually. Only 13 per cent. of the value of lost linen is collected from porters, the other 87 per cent. being "excused." The average porter's pay is $34 a month. Conductors get $85 or more. The vestibule patent expired five years ago and the Pullman Company now controls no live patents.

Hearing on the Buffalo, Rochester & Eastern.

At the hearing before the New York Public Service Commission, Second district, on the Buffalo, Rochester & Eastern Railroad, H. T. Newcomb of Washington, D. C., testified for the railways opposing the granting of a certificate of necessity. He presented calculations designed to show that the existing railways were amply able to handle all the grain that could be offered at Buffalo. On the canals and not the railways must fall the blame for any falling off in the grain exportation through New York, he said. In 1893 44 per cent. of all the grain that had reached the seven principal ports of the East—New York, Boston, Portland, Philadelphia, Baltimore, Montreal and New Orleans—came to New York. Of this 30 per cent. was brought by the railways and 13 per cent. by canal. In 1909 the railways carried 33½ bushels in every 100 or 3½ per cent. more than 16 years before, while the canals only brought 4 bushels, a falling off of 9 per cent.

He quoted James J. Hill and other authorities to show that the growth of population was pressing hard upon the grain production in this country, and that in a short time the United States would have no grain for export. He asserted that his testimony to this effect three years ago in the previous application had been borne out by subsequent results, since in 1907 the figures for grain export had been 100,000,000 bushels, in 1908 66,000,000, in 1909 46,000,000 and for 1910 the incomplete figures showed so far little over one-third as much grain exported as in the same months last year.

The proposed B. R. & E. would have to carry more business than any railway in the United States can get, he declared. Three hundred miles of railway capitalized at $100,000,000 means net earnings of not less than $5,000,000 per year. At a 65 per cent. operating ratio, which he considered very low, he said the B. R. & E. would require gross earnings of $14,300,000, or at the rate of $48,000 per mile. This sum would be nearly five times the average earnings of the railways of the United States.

There had never been any exception to the rule that wherever an independent line has been built closely paralleling an established route, it speedily became insolvent and caused great loss to all the people who supplied the money to build it. The building of such roads tended also to create unjust discrimination among shippers, Mr. Newcomb testified, and always became a detriment to the general industry of the region affected. The West Shore, Nickel Plate, Wabash-Pittsburg Terminal Company, and Kansas City, Pittsburg & Gulf were recent examples of this. Each of them had to be reorganized, and the people who put their money into building them had to assume heavy losses.

The New York Central, in its replies to the complaints of shippers and consignees, which have been made before the Public Service Commission at these hearings is carrying the war into Africa. C. H. Ewings, superintendent of freight transportation of the road, presented elaborate statements showing the actual time taken in the transportation of innumerable shipments which were carried for some of the firms and individuals which had complained of delays. For example, the Syracuse Dry Goods Company had 3,124 shipments in the year 1909, of which 77 per cent. were carried through in a day and a half, and 21 per cent.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF OCTOBER, 1910.

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses					Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or dec.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance Way and structures.	Maintenance Of equipment.	Traffic.	Transportation.	General.	Total.					
Atchison, Topeka & Santa Fe	7,547*	$5,452,727	$1,925,652	$8,019,072	$1,130,245	$1,184,420	$143,968	$2,270,728	$176,204	$4,905,565	$3,113,507	.....	$217,285	$2,896,222	$187,372
Atlantic Coast Line	4,492†	1,798,870	580,974	2,557,254	337,591	399,006	44,631	813,785	65,696	1,660,709	896,545	.....	95,500	801,045	—85,635
Boston & Maine	2,243	2,422,469	1,361,236	4,085,314	582,067	501,976	49,991	1,701,928	85,991	2,921,953	1,163,361	$4,507	187,584	980,284	—164,929
Central of New Jersey	673	1,606,776	396,762	2,111,745	230,754	321,926	31,101	580,898	38,418	1,203,097	908,648	—22,855	96,663	789,130	—179,697
Chicago & Eastern Illinois	965	921,605	189,502	1,171,671	113,887	228,786	22,443	404,023	31,409	800,548	371,123	—866	32,000	338,257	—28,548
Chicago & North Western	7,693‡	5,059,936	1,729,670	7,378,280	1,076,732	980,867	117,565	2,836,092	133,393	5,144,649	2,233,631	—3,181	262,000	1,968,450	—408,905
Chicago, Burlington & Quincy	9,076§	6,138,609	2,103,325	8,909,592	945,996	1,173,753	123,854	2,635,119	189,911	5,068,633	3,840,959	6,340	250,487	3,596,812	1,225,763
Chicago Great Western	1,489‖	893,468	257,403	1,232,593	146,262	177,853	43,282	460,999	37,890	866,386	366,207	—783	32,823	332,601	—42,789
Chicago, Milwaukee & Puget Sound	1,835¶	1,113,425	174,730	1,319,990	63,797	111,409	34,789	424,159	12,763	646,917	673,073	2,682	37,833	637,922	17,276
Chicago, Milwaukee & St. Paul	7,511	4,745,113	1,248,147	6,508,260	849,102	846,234	109,981	2,506,469	96,237	4,408,023	2,100,237	17,899	216,041	1,902,095	—579,108
Chicago, Rock Island & Pacific	7,396	4,212,533	1,746,156	6,293,493	960,196	856,828	161,952	2,203,540	129,057	4,311,573	1,981,920	—10,164	228,270	1,743,486	—278,020
Chicago, St. Paul, Minneapolis & Omaha	1,744	1,145,871	418,955	1,662,073	170,129	174,288	22,509	568,164	28,293	963,383	698,690	—1,615	60,691	636,384	91,433
Cincinnati, Hamilton & Dayton	1,031	623,486	158,812	864,696	53,495	142,441	24,779	360,369	19,903	600,987	263,709	.....	32,723	230,986	—22,814
Cleveland, Cincinnati, Chicago & St. Louis	1,982	1,933,158	690,457	2,868,096	374,951	486,450	85,135	1,143,167	53,565	2,143,268	724,828	—7,034	82,000	635,794	—97,443
Delaware, Lackawanna & Western	930	2,370,650	653,385	3,218,295	378,250	438,138	64,580	923,520	54,519	1,859,007	1,359,288	23,878	138,650	1,244,516	—238,284
Erie	1,959	3,269,170	779,026	4,357,620	623,017	754,324	88,293	1,353,467	79,347	2,898,448	1,459,172	—44,279	120,632	1,294,261	—309,649
Great Northern	7,274a	4,934,086	1,257,920	6,579,389	698,077	665,741	77,830	1,644,348	95,669	3,181,665	3,397,724	33,423	285,279	3,145,868	—364,970
Gulf, Colorado & Santa Fe	1,518	922,252	311,164	1,299,964	216,583	168,402	24,259	428,994	31,968	870,206	429,758	.....	32,325	397,433	77,877
Kansas City Southern	827	696,888	147,437	937,221	93,464	109,112	27,256	296,655	29,648	556,135	381,086	.....	29,476	351,610	60,959
Lake Erie & Western	886	394,438	74,743	495,287	80,022	94,917	16,830	184,667	10,808	387,244	108,043	.....	19,091	88,952	—62,795
Lake Shore & Michigan Southern	1,663	2,949,822	964,605	4,399,008	746,910	730,539	90,527	1,507,000	71,706	3,146,682	1,252,326	—471	147,957	1,103,898	—549,408
Lehigh Valley	1,432	2,911,982	357,687	3,384,100	348,248	527,250	75,271	1,022,779	61,944	2,035,492	1,348,608	—2,371	94,600	1,251,637	—149,353
Louisville & Nashville	4,590b	3,624,302	1,012,422	4,922,964	810,379	781,480	85,863	1,460,721	87,494	3,225,937	1,697,027	3,409	137,800	1,562,636	—341,699
Michigan Central	1,746	1,763,465	664,761	2,706,509	453,200	417,630	70,552	1,084,577	46,174	2,072,133	634,376	—5,226	95,000	534,150	—450,452
New York Central & Hudson River	3,587	5,503,883	2,629,824	9,078,318	1,266,400	1,534,596	227,173	3,284,621	211,103	6,523,893	2,554,425	—2,750	392,229	2,159,446	—489,007
New York, New Haven & Hartford	2,041	2,727,843	2,338,209	5,571,071	682,660	580,134	24,098	2,066,224	143,302	3,496,418	2,074,653	122,712	273,000	1,924,365	—8,312
Norfolk & Western	1,951	2,806,440	375,423	3,300,513	348,738	569,940	48,564	917,105	58,650	1,942,997	1,357,516	—849	93,000	1,263,667	104,903
Northern Central	471	901,598	210,881	1,174,251	257,307	199,916	17,082	528,003	27,126	1,029,434	144,817	889	31,232	114,475	—295,097
Pennsylvania *R.R.* Co	3,970c	10,405,876	2,929,505	14,237,091	1,744,499	2,488,798	203,689	4,864,638	329,276	9,630,901	4,606,190	—66,077	417,679	4,122,434	—571,748
Pennsylvania *Co.*	1,416	3,857,377	721,492	4,933,070	514,891	839,418	82,130	1,643,388	85,000	3,164,826	1,768,244	—3,457	171,264	1,593,523	—371,293
Pere Marquette	2,337	1,009,747	332,040	1,453,527	207,014	225,065	37,827	614,702	31,461	1,116,069	337,458	3,096	59,176	281,378	—212,648
Philadelphia, Baltimore & Washington	717	820,426	674,779	1,653,173	281,563	254,480	29,393	660,129	34,223	1,259,788	393,385	.....	48,907	344,478	—30,817
Pittsburgh, Cincinnati, Chic. & St. Louis	1,468	2,530,208	731,670	3,641,967	436,090	630,584	76,017	1,294,880	62,581	2,500,152	1,141,815	—610	144,373	996,832	—207,447
Southern Ry.	7,038	3,683,782	1,375,311	5,471,391	634,624	843,164	131,644	1,710,991	139,563	3,459,986	2,011,405	3,231	178,729	1,835,907	1,039
Union Pacific	3,412d	3,884,750	1,022,816	5,274,145	449,572	524,897	98,649	1,328,593	115,602	2,517,313	2,756,832	—2,322	150,300	2,604,210	—257,191
Vandalia	827	647,699	223,736	962,560	86,549	162,442	31,129	374,361	19,351	673,832	288,728	.....	28,756	259,972	—17,262

FOUR MONTHS OF FISCAL YEAR 1911.

Atchison, Topeka & Santa Fe	7,547*	$19,763,931	$7,682,213	$29,786,914	$4,278,870	$4,294,427	$559,868	$8,359,752	$605,352	$18,098,269	$11,688,645	.....	$1,030,732	$10,657,913	$255,266
Atlantic Coast Line	4,492†	6,099,621	2,290,757	9,021,842	1,324,235	1,485,737	174,453	3,092,918	266,182	6,343,525	2,678,317	.....	376,500	2,301,817	91,923
Boston & Maine	2,243	8,667,070	6,373,011	16,215,892	2,343,533	1,895,316	201,253	6,731,236	351,998	11,523,336	4,692,556	$23,836	696,470	4,019,922	—669,507
Central of New Jersey	673	5,828,143	1,823,745	8,058,460	923,803	1,275,518	131,673	2,327,155	154,497	4,812,646	3,245,814	159,018	384,571	3,020,261	—193,933
Chicago & Eastern Illinois	965	3,237,441	777,429	4,278,300	448,944	754,974	101,398	1,452,462	125,813	2,883,591	1,394,709	—6,874	125,900	1,261,935	—46,457
Chicago & North Western	7,693‡	17,965,218	7,498,484	27,750,328	4,434,374	3,093,423	457,997	10,457,222	536,515	18,979,531	8,770,797	10,647	1,048,000	7,733,444	—873,028
Chicago Great Western	9,076§	21,172,279	9,019,985	32,759,270	5,135,440	4,879,521	573,165	9,835,369	734,676	21,158,171	11,601,099	—15,501	1,001,849	10,583,749	1,863,185
Chicago, Milwaukee & Puget Sound	1,489‖	3,003,063	1,102,364	4,430,980	533,795	647,644	191,330	1,633,220	141,801	3,147,790	1,283,190	1,567	131,290	1,153,467	— —
Chicago, Milwaukee & St. Paul	1,835¶	4,155,272	518,312	4,795,112	221,468	433,458	120,963	1,617,143	43,854	2,436,886	2,358,226	17,532	151,333	2,224,425	
Chicago, Rock Island & Pacific	7,511	16,675,257	5,639,744	24,352,305	3,588,703	3,062,696	436,800	9,453,477	341,708	16,883,384	7,468,921	116,530	864,163	6,721,288	—916,337
Chicago, St. Paul, Minneapolis & Omaha	7,396	14,416,150	7,339,804	23,076,176	3,833,355	3,150,101	630,779	8,175,242	565,279	16,354,756	6,721,420	—36,757	942,193	5,742,470	—1,242,877
Cincinnati, Hamilton & Dayton	1,744	3,836,093	1,784,845	5,987,850	842,171	665,886	96,432	2,035,985	112,190	3,752,664	2,235,186	—2,627	234,742	1,997,817	339,649
Cleveland, Cincinnati, Chicago & St. Louis	1,031	2,397,452	693,721	3,443,699	286,520	584,424	98,700	1,473,375	87,708	2,530,727	912,972	.....	113,392	799,580	3,627
Delaware, Lackawanna & Western	1,982	6,828,182	3,121,018	10,858,459	1,591,544	1,828,583	372,878	4,337,909	222,624	8,353,539	2,504,920	—28,750	328,000	2,148,170	—1,030,076
Erie	930	8,708,819	2,883,157	12,354,822	1,706,779	1,688,302	253,346	3,479,417	222,946	7,350,790	5,004,032	63,618	534,600	4,533,050	—925,863
Great Northern	1,959	12,515,821	3,570,340	17,275,522	2,255,552	2,841,717	420,777	5,221,425	316,330	11,055,801	6,219,721	—96,220	448,310	5,675,191	478,384
Gulf, Colorado & Santa Fe	7,274a	17,684,187	5,317,129	24,542,341	3,877,634	2,620,833	351,190	6,247,108	387,386	13,484,151	11,058,190	131,999	1,180,294	10,009,895	—1,112,984
Kansas City Southern	1,518	2,769,088	1,149,882	4,177,578	723,828	590,954	96,671	1,520,655	123,752	3,055,860	1,121,718	.....	129,301	992,417	32,386
Lake Erie & Western	827	2,567,708	583,545	3,486,945	364,767	441,579	100,542	1,124,726	109,329	2,140,943	1,346,002	.....	117,906	1,228,096	324,421
Lake Shore & Michigan Southern	886	1,513,139	382,348	2,002,761	318,538	359,646	73,303	717,009	47,765	1,516,261	486,500	.....	75,579	410,921	—106,667
Lehigh Valley	1,663	11,233,150	4,481,443	17,586,259	2,993,084	2,681,463	429,036	5,695,993	305,419	12,104,996	5,481,263	—14,478	591,827	4,874,958	—1,591,778
Louisville & Nashville	1,432	10,093,186	1,881,757	12,409,081	1,356,889	2,034,639	358,245	3,805,152	253,800	7,808,725	4,600,356	—111,976	371,200	4,117,180	—311,297
Michigan Central	4,590b	13,135,554	4,128,745	18,302,001	3,103,085	3,247,257	381,656	5,672,739	354,745	12,759,482	5,542,519	1,820	551,200	4,993,139	—1,279,945
New York Central & Hudson River	1,746	6,520,554	3,106,497	10,622,000	1,706,630	1,523,021	333,807	4,050,893	194,827	7,809,178	2,812,822	—13,558	434,450	2,364,814	—893,558
New York, New Haven & Hartford	3,587	19,631,301	12,343,048	35,600,621	5,189,054	5,565,303	882,777	12,444,191	924,045	25,005,370	10,595,251	—44,539	1,556,216	8,994,496	—935,223
Norfolk & Western	2,041	10,334,362	9,844,535	22,046,413	2,650,318	2,359,404	116,544	7,959,407	566,844	13,652,517	8,393,896	494,802	1,342,000	7,546,698	—197,817
Northern Central	1,951	10,566,451	1,605,835	12,591,374	1,506,897	2,221,665	195,379	3,587,795	240,858	7,752,594	4,838,780	—3,209	372,000	4,463,571	—16,289
Pennsylvania *R.R.* Co	471	3,255,165	876,819	4,370,268	706,525	762,470	69,928	1,958,952	98,300	3,596,175	774,093	3,362	124,927	652,528	—331,374
Pennsylvania *Co.*	3,970c	39,591,557	12,279,088	55,250,102	7,347,570	9,591,656	824,716	18,990,297	1,323,325	38,077,564	17,172,538	—267,279	1,670,716	15,234,543	—1,518,488
Pere Marquette	1,416	15,612,766	3,205,360	20,202,766	2,424,131	3,157,640	332,217	6,474,094	336,316	12,724,398	7,478,368	—17,218	665,187	6,795,962	—774,177
Philadelphia, Baltimore & Washington	2,332	3,603,751	1,664,251	5,716,375	722,173	817,579	168,976	2,339,208	133,885	4,181,821	1,534,554	7,576	236,967	1,305,163	—334,921
Pittsburgh, Cincinnati, Chic. & St. Louis	717	3,547,807	2,679,722	6,832,117	1,068,132	1,062,481	119,214	2,676,868	140,999	5,067,694	1,764,423	.....	195,628	1,568,795	12,905
Southern Ry.	1,468	9,651,867	3,096,302	14,213,553	1,919,326	2,486,271	306,913	5,019,980	261,627	9,994,117	4,219,436	—3,178	528,892	3,687,366	—525,916
Union Pacific	7,038	12,944,149	5,862,663	20,314,512	2,504,770	3,394,386	512,342	6,588,918	554,094	13,554,510	6,760,002	6,276	699,940	6,066,338	101,274
Vandalia	3,412d	14,181,778	4,291,623	19,921,184	2,177,904	2,068,259	410,683	4,681,883	433,139	9,771,868	10,149,316	7,560	585,600	9,571,276	—568,096
	827	2,516,246	898,906	3,758,283	532,943	671,072	113,086	1,433,477	78,486	2,829,064	929,219	.....	112,030	817,189	—68,447

Mileage operated on October 31, 1909.—* 7,459 miles; † 4,477 miles; ‡ 7,638 miles; § 9,021 miles; ‖ 1,511 miles; ¶ 1,400 miles; *a* 7,037 miles; *b* 4,398 miles; *c* 4,017 miles; *d* 3,323 miles; — indicates Deficits, Losses and Decreases.

within less than three days, leaving only about 2 per cent. which had been kept on the road more than three days. In the case of Judson Green, who complained of delays of from three to five days in shipments sent from Rochester to Port Byron, the records show that the average time was 1.2 days. Another consignee had declared that certain shipments took eleven, nine and five days respectively, but the road's records showed seven, four and four days. A mass of evidence was introduced to show that while the time consumed by the railway in transportation averaged 1.2 days, the average time that the goods were held at destination for the consignee was 1.6 days. In the month of October the fruit shippers west of Rochester and Oswego called for 4,155 refrigerator and fruit cars; of these 96 per cent. were furnished on the same day; nearly 4 per cent. on the next day, and only three cars as late as the third day. W. H. Elliott, signal engineer, testified that with the shortening of the block sections, now going on, the line of the New York Central from Albany to Buffalo would have its capacity increased 25 per cent.; and on the Hudson division this improvement will double the capacity of the line. The signal improvements, which are now planned between Croton and Buffalo, about 400 miles, will cost $3,000,000. The average length of block sections will be reduced from nearly two miles to about one mile.

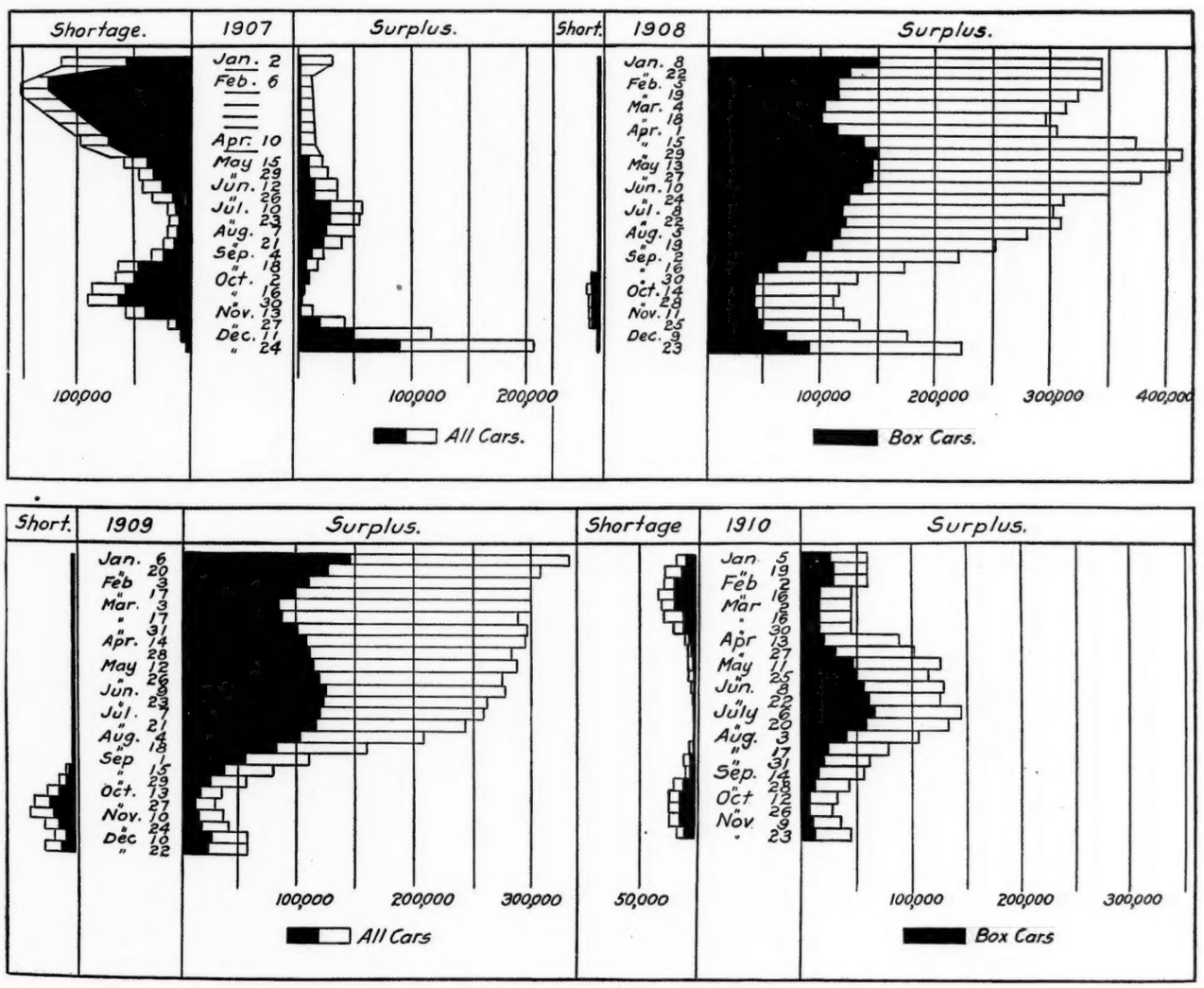
Car Surpluses and Shortages.

Arthur Hale, chairman of the committee on relations between railways of the American Railway Association, presenting statistical bulletin No. 83-A, giving a summary of car short-

CAR SURPLUSES AND SHORTAGES.

Date.	No. of roads.	Surpluses Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Shortages Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group *1.—November 23, 1910	8	104	200	282	235	821	23	158	215	153	549
" 2.— " 23, 1910	20	1,211	128	707	4,141	6,187	78	0	281	117	476
" 3.— " 23, 1910	24	2,334	353	1,590	2,493	6,770	851	0	548	1,080	2,479
" 4.— " 23, 1910	10	229	30	402	406	1,067	1,400	364	2,217	9	3,990
" 5.— " 23, 1910	18	0	0	0	458	458	1,459	513	501	0	2,473
" 6.— " 23, 1910	18	6,354	756	1,581	4,758	13,449	74	16	65	333	488
" 7.— " 23, 1910	4	391	233	224	786	1,634	50	0	0	0	50
" 8.— " 23, 1910	14	706	105	820	1,965	3,596	1,239	56	354	10	1,659
" 9.— " 23, 1910	11	329	95	115	493	1,032	767	71	46	50	934
" 10.— " 23, 1910	20	658	1,030	1,503	3,550	6,741	1,114	0	3	119	1,236
" 11.— " 23, 1910	5	52	576	25	658	1,311	250	13	0	76	339
Total	152	12,368	3,506	7,249	19,943	43,066	7,305	1,191	4,230	1,947	14,673

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland, and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia, and Florida lines; Group 6—Iowa, Illinois, Wisconsin, Minnesota and the Dakotas lines; Group 7—Montana, Wyoming and Nebraska lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Oregon, Idaho, California and Arizona lines; Group 11—Canadian lines.



Car Surpluses and Shortages in 1907, 1908, 1909 and 1910.

ages and surpluses by groups from July 21, 1909, to November 23, 1910, says:

"There is an increase of 8,485 cars, bringing the total to 43,066, which is 3,538 cars higher than the corresponding period in 1909. With the exception of an increase of 1,325 in flats, the increase is about evenly divided between box, coal and miscellaneous. The box car increase is largest in groups 2 (Eastern), and 3 (Middle), the latter group also contributing the largest item of the increase in coal car surplus, this being due chiefly to the close of lake navigation. The increase in miscellaneous cars is principally in stock cars in groups 3 (Middle), 6 (Northwestern), and 10 (Pacific).

"The shortage was reduced by 6,327 cars, leaving a total of 14,673 cars."

The accompanying table gives surpluses and shortages by groups for the latest period covered in the report and the charts show total surpluses and shortages in 1907, 1908, 1909 and 1910.

Coal Rates in Illinois.

As announced in our last issue, the Illinois railway commission has decided to authorize an advance in coal rates from Illinois mines. The accompanying table gives the results of the auditors' calculations as to cost of service on four of the principal coal-carrying roads, the Illinois Central, the Chicago & Eastern Illinois, the Chicago & Alton and the Cleveland, Cincinnati, Chicago & St. Louis. Some explanation of the figures may be necessary. Taking the figures for the Illinois Central, the commission found that the average rate on coal per ton per mile was 3.5 mills; that the average operating cost per ton per mile due to coal traffic was 2.822 mills; that the cost of operation plus taxes properly allocated to this business was 3.05 mills; that the cost of operation, taxes and charges and credits to income properly apportionable to this business amounted to 2.86 mills, and that the addition of a return of 6 per cent. on stock raised the total cost of handling the business, including all operating expenses, fixed charges, taxes and dividends, to 3.53 mills per ton per mile. It will be noted that on these four roads the average rate per ton per mile was 3.483 mills, and the total estimated cost of handling the business was 3.512 mills.

Counsel for the railways criticised the methods on which the computation was made, W. S. Horton of the Illinois Central claiming that if the computation had been correctly made the total cost to the Illinois Central of handling the business would have amounted to 3.88 mills instead of 3.5 mills. Mr. Horton and R. E. Cary, representing the Big Four, contended that even on the basis of the figures compiled for the commission the railways were entitled to the entire advance proposed, 10 cents a ton.

SUMMARY OF COST, TAXES, ETC., OF HANDLING COAL.

	Ton miles.	Revenue.	Rate per ton mile.	Opr. cost.	Cost per ton mile.	Op. exp. and taxes.	Op. exp. and taxes per ton mile.	Op. exp., taxes and charges to income.	Op. exp., taxes and charges and credits to income.
Illinois Central....	1,021,233,142	$3,574,316	3.5 mills	$2,881,732	2.822 mills	$3,115,106	3.05 mills	$2,926,699	2.86 mills
C. & E. I.....	833,080,147	2,992,628	3.592 "	2,072,149	2.488 "	2,136,187	2.56 "	2,206,465	2.65 "
Chicago & Alton...	553,928,935	1,905,886	3.44 "	1,283,284	2.317 "	1,348,652	2.43 "	1,341,844	2.42 "
C. C. C. & St. L...	424,874,618	1,393.588	3.28 "	829,126	1.95 "	856,763	2.06 "	932,533	2.19 "
Total	2,833,116,842	$9,866,419	3.483 mills	$7,066,292	2.494 mills	$7,456,709	2.632 mills	$7,417,544	2.618 mills

COMMISSIONERS' APPLICATIONS OF ABOVE TO RETURN UPON INVESTMENT.

Bond interest and 6 per cent. on stock devoted to railway use.

Illinois Central.....	3,604,833.81	3.53 mills per ton mile
C. & E. I.....	3,050,179.81	3.688 " " " "
Chicago & Alton.....	2,167,756.56	3.913 " " " "
C. C. C. & St. L.....	1,219,654.15	2.871 " " " "
	9,942,126.43	3.512 mills per ton mile

Officers of Traffic Club of St. Louis.

The following officers have been elected by the Traffic Club of St. Louis for the ensuing year: President, C. R. Gray, senior vice-president St. Louis & San Francisco; vice-presidents, George J. Tansey, president St. Louis Transfer Company; George W. Simmons, vice-president Simmons Hardware Company; C. S. Clarke, vice-president Missouri Pacific; George E. Howard, vice-president Commonwealth Steel Company; W. H. Danforth, president Ralston Purina Company; secretary-treasurer, A. F. Versen, assistant commissioner Traffic Bureau of Business Men's League of St. Louis.

Abolition of Trunk Line Differentials.

Beginning with January 15, the standard first-class fare between New York and Chicago, $20, will be the price of tickets over the Pan-Handle and the Michigan Central lines, putting these lines on a parity with the Lake Shore & Michigan Southern and the Fort Wayne. The Michigan Central route has been improved by the abolition of the ferry at Detroit and the Pan-Handle route has been improved by the abolition of the ferry at New York; and the Erie, the Wabash and the Grand Trunk, holding that these changes removed the disability on account of which the Michigan Central and the Pan-Handle have hitherto enjoyed a differential, demanded some time ago that the differential be done away with; and after some delay it was announced, on Thursday last, that the stronger roads had agreed to this demand of the weaker. The adjustment makes the following changes:

Michigan Central.

Chicago to New York—Present rate, $19 first class and $17 second class; new rate, $20 first class and $18 second class.

Chicago to Buffalo—Present rate, $11.50 first class and $10.50 second class; new rate, $12 first class and $11 second class.

Pan-Handle.

Chicago to New York—Present rate, $18 first class and $16 second class; new rate, $20 first class and $18 second class.

INTERSTATE COMMERCE COMMISSION.

The Interstate Commerce Commission has ordered that not only must property to be transported be in the possession of the carrier issuing bill of lading therefor at the time of such issuance, but such bill of lading must be dated as of the day when the shipping instructions are fully given, and the carrier finally authorized to forward the property.

The commission will give a hearing in Chicago, December 21, to listen to the claimants who have asked reparation on freight shipments between the Mississippi and the Missouri rivers, which were made after the decision of the commission ordering a reduction and pending the appeal to the supreme court. It is said that claims amounting to more than $100,000 have already been filed with the commission.

No Stop-Off Privilege on Wool.

Traugott Schmidt & Sons v. Michigan Central et al. Opinion by Commissioner Lane:

Present blanket any-quantity rate of 50 cents per 100 lbs. on wool "in the grease" applying from Chicago, Detroit and other points to Boston found not unduly discriminatory as applied to Detroit. Petition asking the commission to order establishment of a "stop-off" privilege on wool at Detroit denied. Complaint dismissed. (19 I. C. C., 535.)

Rates on Coal.

Sligo Iron Store Co. v. Union Pacific et al. Opinion by Commissioner Prouty:

Reparation awarded against the principal defendant for unreasonable rate on one carload of soft coal from Omaha, Neb., to

Ogden, Utah. The commission does not attempt to express an opinion on the reasonableness of the combination rate on soft coal from Thomas, W. Va., to Tonopah, Nev., nor to establish a joint through rate. Without attempting to determine what would be a reasonable rate to apply to the transportation of bituminous coal generally between Cairo, Ill., and Texarkana, Ark., the commission is of the opinion that the rate charged in this case was not unreasonable. Amendment to complaint dismissed. (19 I. C. C., 527.)

Failure to Sell Round Trip Tickets.

Solomon Ballin v. Southern Pacific: Opinion by Commissioner Prouty:

Elko is a station upon the line of the Southern Pacific from Ogden to San Francisco, situated east of Reno, Nev. Complainant desired to go from Elko to San Francisco and return, and applied to the station agent at Elko for a round-trip ticket. The agent had no such ticket; but told the complainant that there was in effect from Reno to San Francisco a round-trip rate, and suggested to the complainant that he should buy a round-trip ticket from Elko to Reno, and there purchase a round-trip ticket from Reno to San Francisco. The complainant attempted to carry out the suggestion of the ticket agent and purchased a ticket from Elko to Reno and return, but the train upon which he was riding did not stop long enough at Reno to permit him to purchase a round-trip ticket, and he was compelled to pay his fare to San Francisco and purchase tickets from San Francisco back to Reno. There is nothing upon this record as presented which shows such discrimination in the present case, and we have not felt called upon to further investigate this matter of our own motion. The complaint will therefore be dismissed. (19 I. C. C., 503.)

STATE COMMISSIONS.

The Railroad Commission of Louisiana has decided that the rates on rough oak staves or stave bolts should be the same as the rates on staves, and a former order giving the rough oak staves a lower rate than staves has been cancelled.

The Indiana railway commission has followed the example of the Illinois commission in permitting advances in coal rates. The advance allowed by the Indiana commission will be from 5 to 10 cents a ton from mines in Indiana to other points in the state and the roads will also make an increase of 10 cents a ton from Indiana points to Chicago.

The Railroad Commission of Louisiana has ordered in effect certain reduced party rates and has allowed one or more baggage cars to be charged for at the rate of seven and a half fares for each car for each party requiring exclusive use of passenger cars, and has allowed one baggage car free for each 20 adults not desiring the exclusive use of passenger cars.

The Railroad Commission of Louisiana has held that the Natchez Vidalia Rice Milling Company should not be charged for demurrage which accrued on shipments of heavy machinery held pending a completion of a track to their erecting plant. The railway company had agreed to build the track within a reasonable time, and on this assurance the complainant had ordered its machinery shipped, but was unable to unload until the track was finished.

COURT NEWS.

The Supreme Court of the United States has affirmed the decision of the Indiana supreme court in a suit brought against the city of Connersville, by the Cincinnati, Indianapolis & Western. The court held that the railway company must pay for a bridge, made necessary by a street extension ordered by the city. Just because a railway happens to be on the spot first is no reason why it should not build and maintain bridges at street crossings if a city should come along later and settle down on both sides of the road. In this case the city wishes to construct a street under the tracks. The Indiana court held that the city must pay for the land taken in cutting through the embankment on which the road runs and for the cost of removing the embankment, but refused to allow for the cost or for the maintenance of a bridge as an item of damage to the railway. This view the Supreme Court of the United States sustains.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

J. A. Strubel, receivers' secretary of the Detroit, Toledo & Ironton, has been appointed assistant to the receivers, with office at Detroit, Mich.

Henry W Miller, assistant to first vice-president of the Southern Railway, at Raleigh, N. C., has been appointed assistant to the president, with office at Atlanta, Ga., succeeding J. S. Barbour Thompson, resigned to become president of the Atlantic Compress Company.

Operating Officers.

Fred Meyers, trainmaster on the Moberly division of the Wabash Railroad, at Stanberry, Mo., has been transferred to Moberly, Mo. W. H. Eckerd succeeds Mr. Meyers.

John Pickley, general road foreman of engines of the Lehigh Valley, at Sayre, Pa., has been appointed a trainmaster, with office at Sayre, and his former position has been abolished.

E. H. Daniel, trainmaster of the Central of Georgia, at Macon, Ga., has been appointed superintendent of the Macon and Chattanooga divisions, with office at Macon, succeeding H. D. Pollard, resigned.

E. E. Cain, trainmaster of the Pere Marquette at Detroit, Mich., has been appointed superintendent of the Cincinnati, Hamilton & Dayton, with office at Wellston, Ohio, succeeding J. W. Anderson, resigned.

Lawrence A. Downs, assistant engineer maintenance of way of the Illinois Central at Chicago, has been appointed a superintendent, with office at Fort Dodge, Iowa, succeeding George W. Berry, transferred.

H. O. Halsted, superintendent of terminals of the Pere Marquette at Chicago, has been appointed superintendent of transportation, with office at Detroit, Mich. M. J. Griffin, transportation director at Detroit, succeeds Mr. Halsted.

O. Nickerson, acting general manager of the New England Navigation Company, which operates the Fall River Line and other steamship lines of the New York, New Haven & Hartford, has been appointed general manager, with office at New York.

J. E. Stumpf, superintendent of the Moberly division of the Wabash Railroad, at Moberly, Mo., has been appointed superintendent of the Decatur division, with office at Decatur, Ill., succeeding L. J. Ferritor resigned to go to another company. T. J. Jones, trainmaster at Kansas City, Mo., succeeds Mr. Stumpf.

S. E. Canady, assistant superintendent on the Utah division of the Oregon Short Line and the Southern Pacific Lines east of Sparks, has been transferred to the Salt Lake division, with office at Imlay, Nev., succeeding A. E. Kane, assigned to other duties. M. A. Pond succeeds Mr. Canady, with office at Salt Lake City, Utah.

The Pennsylvania Tunnel & Terminal Railroad, from Manhattan transfer (Harrison, N. J.) to and under the Hudson river, the borough of Manhattan, and the East river and Sunnyside yard, 12 miles, including the Pennsylvania station in New York City, is now operated as the New York terminal division of the Pennsylvania Railroad. C. S. Krick is the superintendent, with office at New York.

The position of W. C. Park, superintendent of the New Orleans Great Northern, at Bogalusa, La., has been abolished and all correspondence heretofore handled through the superintendent's office will be handled through the general manager's office, except correspondence relating to claims, which will be handled by C. J. Wade, auditor. The trainmaster's office will handle correspondence with train employees.

O. H. Hobbs, superintendent of the Baltimore division of the Baltimore & Ohio, at Baltimore, Md., has been appointed superintendent of the Cumberland division, with office at Cumberland, Md., succeeding John J. Driscoll, assigned to other duties.

J. T. Olhausen, trainmaster at Baltimore, succeeds Mr. Hobbs, and C. A. Mewshaw, chief train despatcher, succeeds Mr. Olhausen. J. J. Swartzbach succeeds Mr. Mewshaw.

John B. Dickson, superintendent of the Rochester division of the Erie Railroad, at Rochester, N. Y., has been appointed general agent at Chicago, succeeding R. E. Woodruff, who succeeds Mr. Dickson as superintendent of the Rochester division. W. A. Baldwin, trainmaster at Galion, Ohio, has been appointed superintendent of the Chicago & Erie division, succeeding E. C. Allen, assigned to other duties.

Charles Ware, assistant general manager of the Union Pacific during the absence of A. L. Mohler, vice-president and general manager, will be in charge of the operation of the road. For a like period W. D. Lincoln, assistant general manager, will assume the duties heretofore devolving upon Mr. Ware, in the operating department, and W. R. Cahill, superintendent of the Nebraska division, with the title of acting assistant general manager, is temporarily assigned to the duties heretofore performed by Mr. Lincoln, all with offices at Omaha, Neb.

C. W. Bearden has been appointed assistant superintendent of the Chicago & Alton, with office at Bloomington, Ill. L. C. Badgley, superintendent of the Rutland, Toluca & Northern, at Toluca, has been appointed a trainmaster of the Alton, with office at Dwight, with jurisdiction over the line from Dwight to Peoria, including the R. T. & N. S. P. Henderson has been appointed a trainmaster, with office at Bloomington, succeeding J. M. Baths, resigned. C. L. Hinkle has been appointed assistant to the general manager of the Alton and the Toledo, St. Louis & Western, and X. H. Cornell has been appointed inspector of transportation of both, with offices at Chicago. J. M. Kelley has been appointed superintendent of terminals, with office at East St. Louis, succeeding P. L. McManus, resigned to go to another company.

Francis M. Benning, whose appointment as assistant superintendent of the Delaware, Lackawanna & Western, with office at Hoboken, N. J., has been announced in these columns, was born in 1865 at Hannibal, Mo. He was educated in the high school at Keokuk, Iowa, and began railway work in October, 1881, with the Wabash Railroad as telegraph operator and despatcher. Four years later he went to the Toledo, Peoria & Western as chief clerk. From 1889 to 1892 he was chief despatcher of the Chicago, Peoria & St. Louis and then went to the Chicago, Rock Island & Pacific as assistant chief despatcher and chief clerk, remaining in that position until 1899. He went to the Delaware, Lackawanna & Western in 1889 as chief despatcher and in 1907 he was appointed passenger trainmaster at Hoboken, N. J., which position he held at the time of his recent appointment as assistant superintendent.

Traffic Officers.

E. C. Arnold, contracting agent of the Louisville & Nashville at Cincinnati, Ohio, has been appointed a general agent, with office at Cincinnati.

G. A. Dobbin, industrial and colonization agent of the Gulf, Colorado & Santa Fe, with office at Galveston, Tex., has resigned to engage in other business.

E. S. Manchester has been apopinted a traveling agent of the Lackawanna Line, with office at Binghamton, N. Y., succeeding W. A. Frey, resigned.

E. K. Fleming has been appointed general agent, freight department, of the Chicago, Burlington & Quincy, with office at Chicago, succeeding C. A. Johnson, deceased.

Kenneth C. Kerr has been appointed industrial agent of the Alaska Steamship Company and the Copper River & Northwestern Railway, with office at Seattle, Wash.

J. R. Rowland has been appointed traffic manager of the Atlanta, Birmingham & Atlantic, in charge of both the freight and passenger departments, with office at Atlanta, Ga.

F. T. Rennie, commercial agent of the Mallory Steamship Company at Dallas, Tex., has been appointed assistant general freight agent, with office at Galveston, Tex., a new position.

William Nicholson has been appointed industrial and immigration agent of the Kansas City Southern, with office at Kansas City, Mo., succeeding F. E. Roesler, appointed head of the publicity department.

C. K. Bothwell has been appointed district passenger agent of the Missouri Pacific-Iron Mountain system, with office at Joplin, Mo., succeeding C. C. Carson, resigned to accept service with another company.

H. S. Bradley, general agent of the Wheeling & Lake Erie at Canton, Ohio, has been appointed general freight agent of the Ann Arbor Railroad and Steamship Lines, with office at Toledo, Ohio, succeeding T. F. Butler, resigned to engage in other business.

J. E. Collins, traveling freight agent of the Pittsburgh, Cincinnati, Chicago & St. Louis at Richmond, Ind., has been appointed freight solicitor of the Cleveland, Akron & Columbus, with office at Columbus, Ohio, succeeding G. W. Koonce, promoted.

Alan W. Graves has been appointed a commercial agent of the Atlantic Coast-Savannah Line and the Central-Savannah Line, succeeding J. B. Andrews, deceased, and W. A. Herman has been appointed a traveling freight agent, both with offices at Baltimore, Md.

William G. Hutchinson has been appointed a contracting freight agent of the Illinois Central at Boston, Mass. H. P. Hewes has been appointed a traveling freight agent at New York, and C. J. Ryan has been appointed a traveling freight agent at Kankakee, Ill., succeeding L. L. Moseley.

G. E. Parker has been appointed a traveling freight agent of the St. Louis & San Francisco, the Chicago & Eastern Illinois and the Evansville & Terre Haute, with office at Pittsburgh, Pa., succeeding E. D. Forde, resigned to accept service with another company. C. E. Rose has been appointed a traveling passenger agent, with office at New Orleans, La., succeeding L. B. Washington, promoted.

G. E. White, general agent of the Rock Island Lines, at Chicago, has been appointed assistant general freight agent, with office at Chicago, succeeding T. A. Gantt, resigned to go into other business. C. H. Caswell, division freight agent at Davenport, Iowa, succeeds Mr. White, and E. L. Goff succeeds Mr. Caswell. R. D. Stanley has been appointed a traveling freight and passenger agent, with office at Salt Lake City, Utah, succeeding D. B. Eldredge, deceased.

Incident to the separation of the management of the Minneapolis & St. Louis and the Iowa Central from that of the Chicago & Alton and the Toledo, St. Louis & Western, the jurisdiction of C. A. King, freight traffic manager, and George J. Charlton, passenger traffic manager, has been withdrawn from the Minneapolis & St. Louis and the Iowa Central, S. G. Lutz, general freight agent of the four roads at Chicago, has been appointed traffic manager of the latter two roads, with office at Minneapolis, Minn.; and A. B. Cutts, assistant general passenger agent of the four roads at Minneapolis, has been appointed assistant traffic manager, with office at Minneapolis.

Engineering and Rolling Stock Officers.

D. L. Cullom has been appointed resident engineer of the New Orleans Great Northern, with supervision over the track department, and bridges and buildings department, with office at Bogalusa, La.

M. P. Cheney, road foreman of the Atchison, Topeka & Santa Fe Coast Lines, at San Bernardino, Cal., has been appointed master mechanic of the Arizona division, with office at Needles, Cal., succeeding L. A. Mattimore, transferred.

A. R. Manderson, master mechanic of the Maine Central, at Portland, Me., has been appointed assistant superintendent of motive power and H. A. Southworth, division foreman at Waterville, has been appointed master mechanic, with office at Portland.

J. T. McGrath, master mechanic in the locomotive shops of the Grand Trunk at Battle Creek, Mich., has been appointed superintendent of rolling stock, in charge of the Bloomington locomotive and car shops and terminals, of the Chicago & Alton, with office at Bloomington, Ill., succeeding Peter Maher, superintendent of motive power and equipment, resigned.

T. J. Cutler, master mechanic on the Rocky Mountain division of the Northern Pacific at Missoula, Mont., has been appointed master mechanic on the Idaho division, with office at Spokane,

Wash., succeeding F. B. Childs, deceased. Silas Zwight, master mechanic of the St. Paul division at Minneapolis, Minn., succeeds Mr. Cutler, and J. B. Neish succeeds Mr. Zwight.

S. R. Richards, general inspector of the New York, New Haven & Hartford, at New Haven, Conn., has been appointed superintendent of shops, at New Haven, succeeding George Donahue, resigned. H. C. Oviatt, master mechanic of the Western division, at Waterbury, succeeds Mr. Richards, and C. J. Stewart, as previously announced in these columns, succeeds Mr. Oviatt.

C. F. Loweth, engineer and superintendent of bridges and buildings of the Chicago, Milwaukee & St. Paul at Chicago, and the Chicago, Milwaukee & Puget Sound, has been appointed chief engineer, with office at Chicago, succeeding D. J. Whittemore, appointed consulting engineer. Mr. Loweth was born March 3, 1857, at Cleveland, Ohio, and was educated at Oberlin College, Oberlin, Ohio. He began railway work in 1876 as a rodman on surveys with the Cleveland, Lorain & Wheeling, now part of the Baltimore & Ohio. He was afterward consecutively, draftsman with the Atchison, Topeka & Santa Fe; assistant chief engineer on the Des Moines and Northwestern; consulting engineer on bridge construction with the Northern Pacific; consulting engineer, successively, with the Minneapolis & St. Louis, the Minneapolis, St. Paul & Sault Ste. Marie and the St. Paul & Duluth, now part of the Northern Pacific; then engineer of the St. Paul Union Depot Company; chief engineer of the South St. Paul Belt Company; chief engineer of the Davenport, Rock Island & Northwestern. He has been engineer and superintendent of bridges and buildings of the Chicago, Milwaukee & St. Paul since March, 1901, and since March, 1906, has also held the same office on the Chicago, Milwaukee & Puget Sound.

C. F. Loweth.

Purchasing Officers.

H. F. Lowther, chief clerk in the purchasing department of the Delaware, Lackawanna & Western, at New York, has been appointed assistant purchasing agent, with office at New York.

OBITUARY.

Alexander Young Lindsay, formerly traveling passenger agent of the Grand Rapids & Indiana, and later connected with the office of the assistant general passenger agent of the Pennsylvania Lines, at Cincinnati, Ohio, died in that city December 3, at the age of 67 years.

William E. Powell, former immigration commissioner of the Chicago, Milwaukee & St. Paul, died at his home in Milwaukee, Wis., on December 1, at the age of 69 years, following an attack of heart disease. Mr. Powell was born in Bedd Gilbert, North Wales, and came to the United States in 1866. He was general immigration agent for the Milwaukee road, from 1868 to 1903, when he went into the land and colonization business.

L. V. Finkle, general agent of the Norfolk & Western, at Cincinnati, Ohio, died at his home in Norwood, December 1, at the age of 49 years. Mr. Finkle was a well known railway man in the central states. He was an active member of the Transportation Club of Cincinnati, and was formerly a director of the Chamber of Commerce. Mr. Finkle entered the service of the Adams Express Company when a young man, and a few years later went to the Cumberland Gap Despatch as soliciting freight agent, remaining in that position until March, 1902, when he was appointed general agent of the Norfolk & Western, which position he held at the time of his death.

Railway Construction.

New Incorporations, Surveys, Etc.

ALASKA NORTHWESTERN.—Incorporated in Arizona with $60,000,000 capital, to build from Vancouver, B. C., northwest through the Yukon district, along the Mason, Tanana and Yukon rivers, via the cities of Kuyuk, Council City, Nome and Bering City, to Cape Prince of Wales (Tin City), Alaska, on Bering strait. The survey covers a distance between terminals, of 2,300 miles. A reconnoissance of the right-of-way and location maps have been made, which shows that the line can be built with easy curves. On the Seward Peninsula division, which is to be 395 miles long, the maximum grades for 5,200 ft. will be 1 per cent., and on the rest of the line will have 0.5 per cent. grades. The line will traverse large fields of coal deposits, as well as develop mining sections. A dock is to be built at Bering City, with the necessary warehouses, at a cost of about $500,000. Harbor improvements are to be made at Port Clarence, Bering City, on the Seward Peninsula. C. Swenson, president, and P. Schmolck, secretary, 59 William street, New York.

ALLEGHENY & NORTHWESTERN.—A contract has been given to John Schaffner for grading 6.5 miles of line, it is said, between Evans City, Pa., and Mars. Additional grading contracts will be let soon. The plans call for a line from Evans City to Harmarville, 21 miles. J. G. McPherson, president, Philadelphia; H. B. Graves, engineer in charge of construction, Butler.

BANGOR & AROOSTOOK.—This company opened for traffic on November 28 the extension from Fort Kent, Me., to Grand Isle, 28 miles.

BEAUMONT & GREAT NORTHERN.—An extension has been projected from Weldon, Tex., to Waco, 103 miles.

CANADIAN NORTHERN.—A contract is said to have been given to McKenzie & Meery, to build from the Pembina river, Alb., to Yellow Head Pass.

CANADIAN PACIFIC.—An officer of the Esquimalt & Nanaimo writes that a contract has been given to Janse, McDonnell & Co., Port Alberni, B. C., for work from Cameron lake, on the island of Vancouver, to Port Alberni, 28 miles; also, from Duncans to Cowichan lake, 18 miles.

CAPITAL CIRCUIT TRACTION.—Financial arrangements have been made, it is said, for building about 170 miles of electric belt lines to connect Danville, Ind., Franklin, Shelbyville, Greenville, Noblesville and Lebanon. J. N. Crabb, president, Indianapolis.

CENTRAL ONTARIO.—This company is carrying out with its own men work on an extension from Mile 31 to Whitney, Ont., 11 miles.

DULUTH & NORTHERN MINNESOTA.—This company is building with its own forces an extension from mile post 55 to mile post 62, seven miles.

ESQUIMALT & NANAIMO.—See Canadian Pacific.

GULF COAST LINE.—See National Railways of Mexico.

HALITE & NORTHERN.—Incorporated in New York with $100,000 capital, to build from Halite, N. Y., in Livingston county, on the Pennsylvania Railroad to a connection with the Genesee & Wyoming, 3.5 miles. W. A. Hazard, E. W. Brown and A. Bigelow, New York, are incorporators.

HA HA BAY.—An officer writes that a contract has been let to Boultanne & Boultanne, Chicoutimi, Que., for building from a point on the main line to LaFerriere village, eight miles. J. F. Green, chief engineer, Chicoutimi.

HUDSON BAY RAILWAY.—According to press reports, bids are to be asked for in January, 1911, to build the first section of 150 miles, from The Pass, Keewatin, to Split lake. (Dec. 2, p. 1096.)

MEXICO, SANTA FE & PERRY TRACTION.—A contract has been given to the Heinz-Young Construction Company, St. Louis, Mo., it is said, to build from Mexico, southwest to Hereford, 20 miles. It is expected to have this section finished about April 1, 1911. The line is eventually to be extended to Columbia, Fulton and Mokane. M. Crum, president, Mexico. (November 25, p. 1023.)

MICHIGAN CENTRAL.—An officer writes that the two additional tracks from Calumet Park, Ill., to a point near Gibson, Ind., which were built during 1908, were not connected up at that time and the company has only recently connected them with the main line at a point near Gibson. The old main tracks are now connected with freight leads to Gibson yard. (Nov. 18, p. 985.)

MORGANTOWN & SOUTHERN (Electric).—An officer writes that surveys have been made for an electric line from Morgantown, W. Va., to Fairmont, 27 miles. Work is now under way on five miles. E. Herd, secretary, Morgantown.

NATIONAL RAILWAYS OF MEXICO.—This company is planning to build under the name of the Short Line, from Mexico City, Mex., eastward via Beristain, Necoxa, Pantepec and Tamos to Tampico, 300 miles. The first section of about 100 miles from Mexico City to Beristain is a narrow gage line now in operation. This line will be made standard gage. The grading work will be very heavy, and there will be about six miles of tunnel work. Maximum grades will be 2 per cent. compensated, maximum curvature 12 degrees. Final location has been made from Beristain to a connection with the Gulf Coast Line at the foot of a 2 per cent. grade about 70 miles. Under the name of the Gulf Coast Line a line will be built from Matamoros, Mex., south via Tampico and Pantepoc to Vera Cruz, about 550 miles. Engineers are now at work locating the line which is to form a link of the Pan-American Railway. On this line the grading will be average work; there will be many steel bridges, maximum grades will be 0.5 per cent., maximum curvature 4½ degrees. James M. Reid, chief engineer, and H. M. Taylor, director of construction, Mexico City.

According to press reports the Interoceanic Railway expects to have work finished on a 26-mile cut-off from Metepec, Mex., east to San Lorenzo, about the middle of February, 1911.

NEVADA-CALIFORNIA-OREGON.—Work is now under way by the Hall Construction Company, Alturas, Cal., and Richardson & Nugent, Lakeview, Ore., between Alturas and Lakeview, 60 miles.

NEVADA COPPER BELT.—Work is now under way by P. J. Conway, Sweetwater, Cal., on an extension from Wilson, Nev., to Morning Star, 15 miles. (November 11, p. 941.)

NORTH COAST.—Work is under way by Tribble & Anderson, G. A. Carlson & Co., and Washtok & Chew, all of Spokane, Wash., on the section from Spokane, Wash., to Ayer station, 103.87 miles.

OREGON SHORT LINE.—Work is now under way by the Utah Construction Company, Ogden, Utah, on the Yellowstone Park Railway, from Ashton, Idaho, to Driggs, 37.45 miles.

Work is under way by the Utah Construction Company on the Bear Lake branch, from Montpelier, Idaho, to Paris, 9.5 miles.

OREGON & WASHINGTON.—Work is under way on a branch from Cosmopolis, Wash., south to North river, 12 miles. Grant, Smith & Company, Cosmopolis, are the contractors. (October 28, p. 813.)

PENNSYLVANIA RAILROAD.—Work is now under way laying 11 miles of track in the yards at Austinburg, Ohio, which are to be used for storing cars, to relieve congestion at the Ashtabula yards. About seven miles of track has been laid. Most of the land used as a site for the yards was swampy ground; the company has carried out a large amount of work filling in cinders and cement.

QUEBEC RAILWAY, LIGHT & POWER COMPANY.—This company is making surveys for an extension from Beauport, Que., to Montmorency Falls, 3.5 miles.

RED RIVER VALLEY & TEXAS.—Financial arrangements are said to be made, and construction work is to be started within a few weeks. The projected route is from Ardmore, Okla., to Chillicothe, Texas. G. Kenfaver, chief engineer, Davidson, Okla. (May 6, p. 1184.)

ROCK ISLAND, TEXICO & GULF.—An officer writes that work is now under way by M. F. Calback & Co., Farwell, Texas, between that place and Center, in Bailey county, on 30 miles. It is expected to begin track laying in 30 days. The line is eventually to extend from Farwell to Knowles, N. M., 117 miles. M. J. Healy, president, Farwell. (October 28, p. 811.)

SHORT LINE.—See National Railways of Mexico.

SUPERIOR & SOUTHEASTERN.—An officer writes that a contract has been given to Balch & Co., Minneapolis, Minn., for building a five-mile line from Wisco, Wis.

SOUTHERN PACIFIC OF MEXICO.—Work is now under way by the Grant Brothers Construction Company, Los Angeles, Cal., from the mouth of the Santa Rosa river, Mex., to Tepic, 33 miles. The line has been located from Tepic to Magdalena, 102.5 miles. (November 18, p. 986.)

TEMISKAMING & NORTHERN ONTARIO.—According to press reports, this company will build a branch from Kelso, Ont., to Porcupine, 32 miles. It is estimated that it will cost about $450,000 to build the line.

TEMPLE-NORTHWESTERN.—Work is now under way by D. J. Grigsby, Temple, Tex., from Messer to Gatesville, 32 miles. An extension is projected from Gatesville to Hico, 42 miles. W. E. Dozier, general manager, Temple. (September 23, p. 559.)

TRINITY VALLEY & NORTHERN.—Surveys are being made for an extension to Lamb, Tex., 7.5 miles.

UNION PACIFIC.—Work is under way by Kilpatrick Brothers, Beatrice, Neb., as follows: from Rock Springs, Wyo., to coal fields, 9.70 miles, also from Dent, Colo., to Fort Collins, 24.75 miles.

UNION RADIAL RAILWAY.—A grading contract has been given to Reagan, Lynch & Co., for work from a point two miles from Juniata, Pa., to Bitner, in Fayette county, two miles. The company's men is laying the track.

WESTERN PACIFIC.—Plans are said to have been approved for building from Oakland, Cal., through Santa Clara county, into the San Joaquin valley. Surveys have been made.

WINSTON-SALEM SOUTHBOUND.—According to press reports, track laying work is nearing completion, on this line which is being built from Winston-Salem, N. C., south to Wadesboro, 88 miles. The line will be used jointly by the Atlantic Coast Line and the Norfolk & Western. O. H. P. Cornell, chief engineer, Winston-Salem. (September 30, page 600.)

WOODVILLE RAILROAD.—This company has surveys under way for a line from Shaw, Fla., to Crawfordville, 11 miles. T. M. Hall, president and general manager, Woodville.

FOREIGN RAILWAY NOTES.

The terms of the contract have been approved for building a section of the Minas Western Railway of Brazil, between Henrique, Galvao, and Kilometer 45, on the Goyaz line.

The Danish Minister of Public Works has asked for a credit of about $1,320,000, for the purpose of buying rolling stock for the State Railways. About one-third of this amount will be spent for the purchase of 23 locomotives, for which bids will be asked later.

Every province of Costa Rica is now reached by railways, with the exception of Guanacaste. There are now in actual operation in Costa Rica 405 miles of line, of which 69 miles are owned by the government and the remainder by private companies.

The newspapers of Asuncion, Paraguay, announce that the extension of the Paraguayan Central Railway from its present terminus at Yuty (157 miles) from the capital, to Villa Encarnacion, on the Alto Parana, is nearly completed.

The British minister to Argentina, who is also credited to Paraguay, traveled in October from Buenos Aires to Asuncion by the Entre Rios and Paraguayan Central lines. The distance between end of the railway on the former road and Posadas, on the Alto Parana, as well as that between Villa Encarnacion and the end of the line on the Praguayan Central was covered on horseback. The whole journey occupied four days.

The present rolling stock of the Paraguayan Central has been bought by the Argentine government and will be transferred to its railway in Patagonia. New cars and engines, which replaced the old and which are of English manufacture, have begun to arrive, although the low water in the Parana river prevented their prompt delivery; 20 locomotives, 26 cars and 229 trucks are being put in operation.

Railway Financial News.

ATLANTIC SOUTH SHORE.—Under foreclosure of the mortgage securing $1,191,500 4 per cent. bonds, the property was sold to representatives of the reorganization committee.

BELT RAILROAD & STOCK YARDS COMPANY.—See Indianapolis Union.

BOSTON RAILROAD HOLDING CO.—A petition has been filed with the secretary of state of Massachusetts asking for legislation to permit the state of Massachusetts to buy and hold stock or bonds of the Boston Railroad Holding Company, and to hold any stock of the Boston & Maine directly or indirectly controlled by the Holding company, and to buy one-half interest in the Boston & Albany, or one-half interest in the Boston, Revere Beach & Lynn. See also Boston under Railroad Structures.

BROOKLYN RAPID TRANSIT.—Justice Le Bouef has reduced the valuation for 1905 of the State Board of Tax Commissioners of New York for special franchise taxes on the Brooklyn Rapid Transit from $1,365,842 to $334,538. The court allows a reduction in addition to ordinary wear and tear for "obsolescence for inadequacy of railway equipment not yet sustained, but capable of reasonable ascertainment for the future." The court says that wrecks of many public service corporations scattered throughout the state would not be seen to-day if this principle had been applied to their accounting.

CINCINNATI, HAMILTON & DAYTON.—The terms of the exchange offered to holders of the $2,728,000 Dayton & Michigan consolidated first mortgage 5 per cent. bonds of January 1, 1881-January 1, 1911, are announced by J. P. Morgan & Co., New York, as follows: Holders who deposit their bonds before December 15, 1910, will receive $5 in cash per $1,000 bond, interest on their bonds to maturity and new bonds at par, having the same lien as the old bonds but bearing 4½ per cent. interest and maturing January 1, 1931.

DELAWARE, LACKAWANNA & WESTERN.—Options have been secured, it is said, on 1,700 acres of newly discovered coal lands lying about 10 miles from Wilkesbarre, Pa.

DETROIT, TOLEDO & IRONTON.—Principal and interest on the general mortgage 4 per cent. bonds has formally been declared due. This action is taken preliminary to foreclosure proceedings.

DETROIT & MACKINAC.—An initial dividend of 2½ per cent. has been declared on the $2,000,000 common stock. The regular semi-annual dividend of 2½ per cent. has been declared, payable January 3, on the $950,000 preferred stock.

ERIE.—An issue of $5,000,000 short term notes, due December 1, has been extended, presumably for less than one year. The notes are secured by Erie & Jersey (Guymard cut-off) bonds.

FLORIDA EAST COAST.—In listing on the New York Stock Exchange $10,000,000 first mortgage 4½ per cent. bonds, the railway company says that $10,000,000 bonds represents "less than one-third of the actual cash cost of the railway to date, the remainder of the cost having been met out of the proceeds of the company's common stock and general mortgage income bonds." There is $20,000,000 income bonds and $3,000,000 stock outstanding.

FORT SMITH & WESTERN.—The holders of the securities of the Fort Smith & Western and the Sans Bois Coal Company have been asked to deposit their securities with a protective committee which has been formed, consisting of W. L. Brown, A. W. Mellon, Colgate Hoyt, W. H. Canniff, W. G. Mather, J. J. Sullivan, George S. Russell, James H. Hoyt, S. H. Tolles, C. C. Bolton and A. C. Dustin. The road runs from Guthrie, Okla., to Fort Smith, Indian Territory—196 miles. There are $6,240,000 first mortgage 4 per cent. bonds and $452,408 equipment trust certificates outstanding. Interest on the bonds has been unpaid since October 1, 1907. The committee is given power to act in case of receivership.

ILLINOIS CENTRAL.—The United States Supreme Court has affirmed the decision of the court of appeals of Kentucky, holding that the franchise taxes for 1897 on the Chesapeake, Ohio & Southwestern (leased to the Illinois Central) are legal. The contention of the state was that the agreement made by the Kentucky tax commissioners to remit two years' franchise taxes if the Illinois Central would pay the 1899 taxes and succeeding years was beyond the powers of the tax commissioners.

INDIANAPOLIS UNION.—The circuit court has sustained the demurrer of the defendants in a suit brought by the Indiana prosecuting attorney to annul the charters of the Indianapolis Union and the Belt Railroad & Stock Yards Company, on the ground that the 999-year lease of the Belt railway to the Union railway violated the law of 1882.

LOUISVILLE & NASHVILLE.—Suit has been filed by the state of Kentucky against the Louisville & Nashville for $640,000 franchise taxes on property alleged to have been fraudulently omitted by the road in its report to the auditor in the last five years.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—A complaint has been filed with the railway commission of Georgia claiming that the terms of the lease of the Western & Atlantic to the Nashville, Chattanooga & St. Louis were not being complied with, because the Nashville, Chattanooga & St. Louis applies southern classification rates between Georgia points and Chattanooga which are higher than the local rates fixed by the commission. The Western & Atlantic is owned by the state of Georgia.

NORFOLK SOUTHERN.—The United States Circuit Court has entered a decree at Norfolk, Va., confirming the sale of the road of the Norfolk & Southern on December 7 last and has directed the manner of applying the $8,500,000 received from the new company, the Norfolk Southern, as the purchase price of the property. This distribution is in accordance with the reorganization plan.

NORTHERN CENTRAL.—Suit has been brought by the Waters minority committee to prevent the 999-year lease of the Northern Central to the Pennsylvania Railroad, on the ground that the Pennsylvania Railroad, the Northern Central, the Philadelphia, Wilmington & Baltimore and the Columbia & Port Deposit all operate parallel lines, and that the proposed lease would be in violation of the anti-trust law.

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—See Oregon Railroad & Navigation.

OREGON RAILROAD & NAVIGATION.—Stockholders are to vote December 22 on the question of authorizing the sale of the property to the Oregon-Washington Railroad & Navigation Company and on the question of dissolving the Oregon Railroad & Navigation Company.

THIRD AVENUE RAILROAD.—The New York Public Service Commission has denied for the second time the application of the bondholders' committee for a releasing in regard to the reorganization plan which the committee has disapproved of.

FOREIGN RAILWAY NOTES.

The Assam Bengal Railway of India is asking tenders for rails and track fastenings for its betterment and extension work.

It is said that all the railway lines in Spain working in connection with the Portuguese railways have been affected by the strike of the employees of the latter, with the exception of the line to Caceres.

The Turkish government has opened public bids for the building and operation of a system of electric tramways in the city of Constantinople. The plans for building the last section of the Rosario-Cruz line, submitted by the Argentine Central Railway to the government, have been approved.

Bids are open for building a railway from Beeza, Spain, to Alcatraz, via Ubeda and Villaca Rillo. The railway is to be built principally for military reasons. It is to be single track, meter gage, and clearances, weight of rail, etc., must be of such a nature as to permit the transportation of artillery. The contract for building the line is open to Spanish firms only, but some of the materials required may have to be obtained outside of Spain.

Supply Trade Section.

The Isthmian Canal Commission will receive bids until December 27 for lumber and mechanical bond steel rods. (Cir. 613.)

John H. Barker, of the Haskell & Barker Car Company, Michigan City, Ind., died on December 2 of pneumonia, complicated with kidney trouble.

The McKeen Motor Car Company, Omaha, Neb., has completed a second 55-foot gasoline motor car for the Woodstock & Sycamore Traction Company, which will be put in service at once at Sycamore, Ill.

Edgar Allen & Co., Ltd., Sheffield, England, announce the appointment of Schrock & Squires, 291 Pearl street, New York, as eastern agents for the company's high grade tool steels, a large stock of which will be carried by them in their warehouse to insure prompt delivery.

The Chisholm & Moore Manufacturing Company, makers of the Cyclone chain hoist, which was described on page 1100 of December 2 issue of the *Railway Age Gazette*, are located at Lakeside avenue and East Forty-ninth street, Cleveland, Ohio, instead of at Chicago, as stated in the article.

The H. W. Johns-Manville Company, New York, announces the removal of its offices at 85 Shelden street, Houghton, Mich., to more commodious and convenient quarters at 96 Shelden street. S. T. Harris, who has been associated with the company for a number of years, will be in charge of the new offices.

F. S. Gassaway, manager of the New York branch office of the Willard Storage Battery Company, Cleveland, Ohio, has been transferred to the main office as general manager of sales. In addition to the New York office, this company maintains branches at Detroit, Chicago and Mexico City.

At the recent meeting of the directors of the American Steel Foundries, Chicago, W. D. Sargent and E. F. Goltra were re-elected directors. George E. Scott, third vice-president, was elected second vice-president, succeeding W. W. Butler, resigned. R. H. Ripley succeeds Mr. Scott as third vice-president.

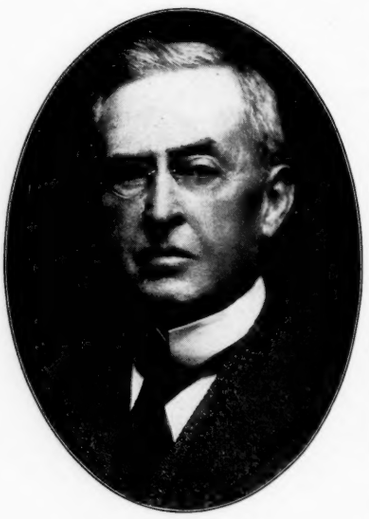
A special meeting of the stockholders of the Union Switch & Signal Company will be held December 14, to vote on the question of increasing the capital stock of the company from $2,500,000 to $5,000,000. The proposal of the directors is that new stock may be issued at the discretion of the board, in payment of dividends or to the stockholders for cash.

The Vanadium Mines Company, of Pittsburgh, Pa., is building an extensive plant at Rankin, Pa., for the reduction of vanadium from ore mined in New Mexico. This is said to be the only deposit of vanadium as yet discovered in this country. The new plant will be placed in operation about February 15. The officers of the company are A. P. Bement, of Terre Haute, Ind., and W. A. Donitz, C. R. Miller and Thomas M. Benner, of Pittsburgh.

The Railway Specialty & Supply Company, Chicago, announces that, on December 1, its name was changed to the P. & M. Co. in order to eliminate the confusion arising from the number of similar names in the supply trade. This company manufactures and sells the P. & M. anti-rail-creeper, and in choosing a new name it was thought best to adopt one which would identify the company with its chief product. The offices of the company are in the Monadnock building, Chicago.

Thomas F. Downing, secretary and treasurer of the Chicago Car Heating Company, Chicago, died on Monday, December 5, from cerebral hemorrhage, resulting from a street car accident last June. Mr. Downing was 30 years old and had been connected with the company since its organization in 1903. His business career began on leaving high school at the age of 15 years, as office boy for Egbert H. Gold, president of the company, with whom he has been associated ever since. Mr. Downing's rise to the position of secretary and treasurer was steady and rapid. He was a man of exceptional mind and of a cheerful disposition, and will be sorely missed by his many friends.

Julius E. French, chairman of the board of directors of the Railway Steel-Spring Company, New York, died at the home of his daughter in Cleveland, Ohio, December 2, following an operation performed just four weeks before. With his death the company has lost, within less than four months, two of its founders. In fact, Mr. French and some of his associates have been looked upon as founders of the railway supply business, having been identified with it long before it was able to walk alone. Mr. French had a large acquaintance, and his loss will be felt. He was a most active and broad minded man, forceful, naturally a leader, and a sympathetic and generous friend. Mr. French was born on a farm near Perry, Ohio, 74 years ago. He attended country school and a New York academy, his parents having planned for him a professional life. This, however, was not to his liking; and at the age of 18 he became a clerk in a general store at Willoughby, Ohio, which he later bought. His history as a railway supply man dates back to the early 'seventies, when with Wilson Dodge and R. K. Winslow, he formed the Winslow Car Roofing Company, of Cleveland. In 1882 he organized the Paige Car Wheel Company, which, in 1897, was consolidated with several other concerns into the Steel Tired Wheel Company, with Mr. French as president. Five years later the Railway Steel-Spring Company was organized, and Aaron French, who, incidentally, was in no way related to Julius E. French, was made chairman and Julius, or "Jules," as he was more frequently called, was elected president. In June of the same year, 1902, the Steel Tired Wheel Company became a part of the Railway Steel-Spring Company. Aaron French lived but a few months after the incorporation of the Railway Steel-Spring Company; but the office of chairman of the board of directors was not filled until March, 1906, when Julius E. French was elected. Mr. French at the time of his death was also a director and chairman of the executive committee of the Railway Steel-Spring Company, and a director in several other concerns, including the American Locomotive Company, and Chicago-Cleveland Car Roofing Company.



Julius E. French.

TRADE PUBLICATIONS.

Valves.—A folder from Jenkins Bros., New York, tells why they believe their valves are better than others.

Brill Cars.—A 92 page, 6 by 9 in., cloth bound catalogue has been published by The J. G. Brill Company of Philadelphia, Pa., which illustrates and gives general data for a large number of representative city and interurban cars and trucks that have been built within the past two years.

Treatment of Boiler Feed Waters.—A booklet on this subject from the Dearborn Drug & Chemical Works, of Chicago, discusses the effect on the boiler of different substances found in water, and explains the Dearborn methods of studying and treating the water to neutralize or overcome the injurious effects.

Signals.—Bulletin No. 4786 from the General Electric Company describes a simple and reliable motor signal having a signal mechanism suitable for either two or three position operation in either the upper or the lower quadrant. This standard mechanism is also applicable to either top or bottom mast operation with but slight modifications. The bulletin contains nearly

90 pages of information, including exterior and interior views of the signal and a detailed description of the signal and apparatus used in connection with its operation.

RAILWAY STRUCTURES.

ALTOONA, PA.—Objection has been made by the Pennsylvania Railroad and the American Railway Company to the plans prepared by the city engineer of Altoona for the new Seventh street bridge, and another conference will be held. Under a previous agreement the two railways and the city assume an equal share of the cost.

BERING CITY, ALASKA.—See Alaska Northwestern under Railway Construction.

BOSTON, MASS.—A petition has been filed with the secretary of state of Massachusetts asking for permission to permit the state to build a double-track tunnel and equip it for railway operation from East Boston, under the harbor, to South Boston; thence to South Framingham.

DRYDEN, N. Y.—The New York Public Service Commission, Second district, has ordered the elimination of the highway grade crossing on the Lehigh Valley near Varna station in the town of Dryden, Tompkins county. The highway is to be carried over the railway by an over grade crossing, the clearance to be not less than 22 ft. above the top of the rail.

GOWANDA, N. Y.—The New York Public Service Commission, Second district, has ordered the Erie Railroad to remove the existing passenger and freight station at Gowanda, and build a new passenger station on the site. The new station is to be 26 ft. wide and 72 ft. long. Work is to be started in the spring of 1911, and is expected to be finished by August.

HUTCHINSON, KAN.—The Atchison, Topeka & Santa Fe has prepared plans for a new roundhouse, car repair shops, coal chute and switching yards.

HUNTINGTON, N. Y.—The Public Service Commission, Second district, has ordered the elimination of the Comac and Crab Meadow road grade crossing on the Long Island Railroad, east of East Northport, in the town of Huntington. The highway is to be carried over the railway on an overhead highway bridge.

LAWTON, OKLA.—The St. Louis & San Francisco is to build a new four-stall roundhouse 40 ft. x 160 ft. The building will also contain a machine shop and blacksmith shop.

LAS VEGAS, NEV.—The Salt Lake, San Pedro & Los Angeles is reported to have prepared plans for a freight house, roundhouse and machine shop to be built at Las Vegas.

LE RAY, N. Y.—See Pamelia, N. Y.

LIBERTY, N. Y.—The New York Public Service Commission, Second district, has ordered the elimination of the grade crossing on the New York, Ontario & Western near Youngs gap, in Liberty. The highway is to be carried over the railway tracks by an over grade crossing on a metal bridge.

LOS ANGELES, CAL.—Plans have been filed by the Southern Pacific and the Pacific Electric, for a drawbridge to be built over the channel between the turning basin and west basin in San Pedro harbor. The bridge is to be of the direct lifting type, with 180-ft. clear spans.

OGDEN, UTAH.—It is reported that the Denver & Rio Grande expects to build a $50,000 freight house.

PAMELIA, N. Y.—The New York Public Service Commission, Second district, has ordered that the highways in the town of Pamelia, on the new cut-off being built between Sanfords, N. Y., and Watertown by the Rome, Watertown & Ogdensburg, shall be carried under the grade of the railway in subways, and that the crossing on the dividing line between the towns of Pamelia and Le Ray is to be carried over the railway. The highway in the town of Le Ray is to be carried under the railway in a subway.

WEST MINSTER, B. C.—The Canadian Pacific has bought a plot of ground at Coquitlam, it is said, which is to be used as a site for shops, roundhouses and freight sheds. It is understood that the company will make this place the mechanical headquarters for the Pacific division.

Late News.

The items in this column were received after the classified departments were closed.

The Louisville & Nashville has given a contract to the Pressed Steel Car Company, Pittsburgh, for steel underframes for 1,200 steel cars which the railway company is building in its South Louisville and New Decatur shops. The order involves approximately $480,000.

A press dispatch from Washington says that Chairman Weeks of the house committee on post offices expects to report the post offices appropriation bill in the near future without any provision changing the rates of postage on second or fourth class matter and without any provision for a parcels post. Mr. Weeks thinks that these provisions if made at the current session will have to be presented in a separate measure or measures.

The telegraph and telephone companies, with the exception of the independent telephone people in the West, at a hearing befor the Interstate Commerce Commission December 7, claimed that they are not compelled by the new interstate commerce law to file tariffs of rates as is required of the railways, which are likewise subject to the same act. Section six of the new law sets forth, so they say that charges for transportation shall be placed on file only with the commission.

A general rehabiliation of the Boston & Maine system has been decided upon. The improvements will include strengthening of bridges, making equipment heavier, especially in locomotives, improving road bed, lowering of grades, and to some extent straightening curves. The changes will be made slowly, but systematically; improvements will be centered at points of the greatest need, including new tracking at Lynn, electrification of the Hoosac tunnel, betterment of rolling stock, and relaying rails.

The Interstate Commerce Commission in an opinion by Commissioner Prouty in the case of W. L. Douglas Shoe Co. et al. *v.* Adams Express Co., finds that after defendant had purchased the stock of a competing express company a lower rate via rail and water from Brockton and other points in Massachusetts to New York City was withdrawn and the route abolished. On petition of shippers asking that the rail-and-water rate and route be restored and praying for reparation, it is held that the commission has not sufficient knowledge to attempt to make an order with respect to all the localities involved, but suggests to defendant that the original route and rate be restored or that an equivalent rate be established by some other route; if defendant does not within 60 days file its tariff in obedience to this suggestion, the matter will be set down for further investigation, and a definite order will be made. Claim for reparation denied. The commission has no authority to order the rival company which sold out to defendant to restore this route and rate. If such authority resides anywhere, it is in the courts and not in the commission. (19 I. C. C., 539.)

The United States Circuit Court of Appeals has handed down a decision holding that it is unnecessary that complaints under the Sherman anti-trust law involving freight rates on railways should first be brought to the attention of the Interstate Commerce Commission before being taken to the federal courts. Henry E. Meeker, a coal operator in the anthracite regions of Pennsylvania, brought suit against the Lehigh Valley, charging that the defendant and other coal carriers conspired to increase the prices of anthracite coal at the mines and charges for the transportation of coal such a sum as to enable them to monopolize the trade and commerce in anthracite coal between Pennsylvania and New York, and by driving all independent shippers out of business to obtain exclusive control of such business. The Lehigh Valley demurred to the complaint on the ground that it did not state facts sufficient to constitute a cause of action under the Sherman law, in that no specific damages were asked for, and also that the controversy was a question of the adjustment of freight rates which should have been taken primarily to the Interstate Commerce Commission. "The nature of the injuries," says the court, "is fairly set forth, and the only inference possible from the allegations is that the damage arose as the direct consequence of the conspiracy charged."

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Chattanooga Southern expects to order some locomotive equipment shortly after the first of the year.

The Wichita Falls Route has ordered two consolidation and one eight-wheel locomotive from the Baldwin Locomotive Works.

The Lake Superior Terminal & Transfer has ordered two eight-coupled switch engines from the Baldwin Locomotive Works.

The Cincinnati, New Orleans & Texas Pacific has ordered from the Baldwin Locomotive Works 10 consolidation and five Pacific locomotives.

The Buffalo, Rochester & Pittsburg is preparing specifications for 10 locomotives, which will be submitted to the builders within the next few weeks.

CAR BUILDING.

The Swift Refrigerator Transportation Company will order 50 produce cars.

The Kanawha & Michigan is asking prices on 1,000 50-ton gondola cars.

The Atlanta & West Point is said to be in the market for passenger cars. This item is unconfirmed.

The Chattanooga Southern expects to order several hundred freight cars and a number of passenger cars shortly after the first of the year.

The Buffalo, Rochester & Pittsburg is preparing specifications for from 1,500 to 2,000 freight cars and 20 passenger cars. These will be submitted to manufacturers within the next few weeks.

The Cold Blast Transportation Company will order 25 all-steel tank cars shortly. These cars have been under consideration for some weeks, but no definite action has been taken as yet.

MACHINERY AND TOOLS.

The Pacific Electric Railway of Los Angeles, Cal., has made a contract with the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., for one 1,000-kw. and two 600-kw. motor generator sets, and three 475-kw. and six 300-kw. oil insulated self-cooled transformers.

IRON AND STEEL.

The Toledo, Peoria & Western has an inquiry out for 1,000 tons of rails.

The Grand Trunk is reported in the market for 5,000 tons of heavy section rails.

The Pennsylvania is said to be in the market for 1,500 tons of steel for a bridge on the New York division.

The Vicksburg, Shreveport & Pacific has ordered 500 tons of rails from the Tennessee Coal & Iron Company.

The Nashville, Chattanooga & St. Louis has ordered 24,000 tons of rails from the Tennessee Coal & Iron Company.

The Philadelphia & Reading is reported to have divided an order for 20,000 tons of rails between the Pennsylvania Steel Company and the Bethlehem Steel Company.

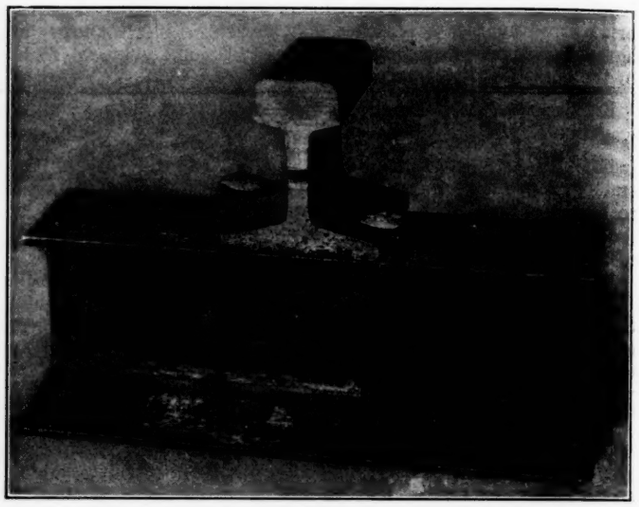
The Western Maryland, it is reported, will award a contract for 20,000 tons of rails within 60 days. The greater part of them will be used on the new Cumberland-Connellsville extension.

Hill Steel Tie Fastener.

The usual fastening for holding a rail to a steel tie is an ordinary clip bolted to the tie, the clip extending over the base of the rail far enough to hold it firmly. For ordinary work this method of fastening has been acceptable, although some trackmen offer an objection to it on account of its requiring additional tools to those ordinarily found in the track-men's kit.

There have been in use this year, at the Duquesne steel works of the Carnegie Steel Company, Pittsburgh, Pa., about 2,000 ties with the rail fastened thereon with a cut spike. The tie is the I-beam type, weighing 20 lb. per foot, top flange 4½ in., bottom flange 8 in., and depth 5½ in. For the ordinary fastening, two square holes are punched in the top flange and two in the bottom. The spike is driven through the hole in the top flange into a hollow malleable iron casting filled with wood. This casing has a short lug on the bottom, which goes through the base of the tie and tends to hold the casting in place until the spike is driven. The hole in the lower flange is punched large enough so that if a spike breaks off it can be driven on through the tie. The malleable casting has a wall about ⅛ in. thick, into which the wood core is driven. The spike can be drawn from the tie with this device with the ordinary claw-bar.

In pulling tests, with the spike driven through the tie, it was found that it required 4,900 lbs. to remove the spike. The

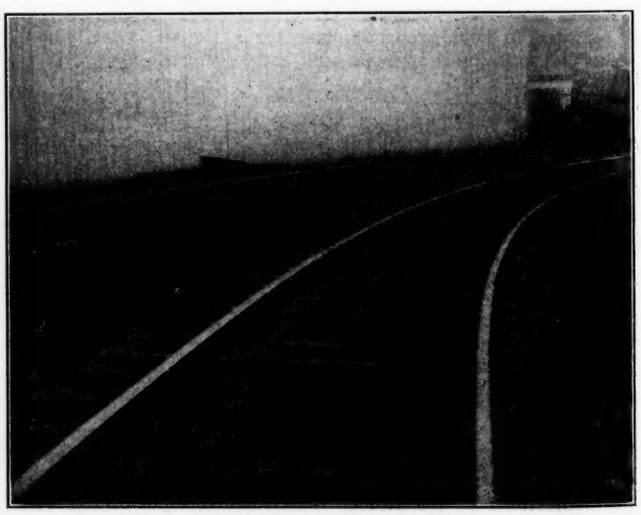


Hill Rail Fastening.

hole was then plugged with an ordinary tie-plug, and the spike re-driven, and it was found that it required 5,000 lbs. to pull the spike. The hole was again re-plugged and this time it required 5,500 lbs. to remove the spike. The fourth time the hole was plugged, the spike could not be driven into the tie without bending, and no further tests were made. Driving the plugs into the tie rapidly did not seem to affect the malleable iron casting.

Each casting weighs about one pound, and, with the expense of putting in the wooden core and the spikes, the entire expense of the fastening would not run over 25 cents per tie.

The photograph shows the track before it was ballasted. This track is on a 15-deg. curve, and since ties were installed the



Ties and Fastenings Before Ballasting.

outer rail was taken off and a new one placed thereon, with no more delay to traffic than would occur under ordinary wood tie conditions. This type of fastening should be particularly applicable to steel ties laid in concrete, as it is an easy matter to remove the rails without interfering whatever with the foundation.

The device is patented by W. H. Hill, a department superintendent of the plant where the ties are installed.